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# PART A

# IONOSPHERIC DATA

ISSUED
MAY 1957

U. S. DEPARTMENT OF COMMERCE
NATIONAL BUREAU OF STANDARDS
CENTRAL RADIO PROPAGATION LABORATORY
BOULDER, COLORADO

CRPL-F153
PART A

NATIONAL BUREAU OF STANDARDS
CENTRAL RADIO PROPAGATION LABORATORY
BOULDER, COLORADO

Issued
22 May 1957

# IONOSPHERIC DATA

## CONTENTS

# SYMBOLS, TERMINOLOGY, CONVENTIONS

Beginning with data reported for January 1952, and continuing through December 1956, the symbols, terminology, and conventions for the determination of median values used in this report (CRPL-F series) conform as far as practicable to those adopted at the Sixth Meeting of the International Radio Consultative Committee (C.C.I.R.) in Geneva, 1951. Excerpts concerning symbols and terminology from Document No. 626-E of this Meeting are given on pages 2-7 of the report CRPL-F89, "Ionospheric Data," issued January 1952. Reprints of these pages are available upon request.

Beginning with data for January 1957, the symbols used are given in NBS Report 5033, "Summary of Changes in Ionospheric Vertical Soundings, Observing and Scaling Procedures - Effective 1 January 1957," which draws upon the First Report of the Special Committee on World-Wide Ionospheric Soundings (URSI/AGI), Brussels, Sept. 2, 1956. A list of these symbols is available upon request.

Beginning with data for January 1945, median values are published wherever possible. Where averages are reported, they are, at any hour, the average for all the days during the month for which numerical data exist.

The following conventions are used in determining the medians for hours when no measured values are given because of equipment limitations and ionospheric irregularities. Symbols used are those given above.

a. For all ionospheric characteristics:

Values missing because of A, C, F, H, L, N, R or S are omitted from the median count.

b. For critical frequencies and virtual heights:

Values of foF2 (and foE near sunrise and sunset) missing because of E are counted as equal to or less than the lower limit of the recorder. Values of h'F (and h'E near sunrise and sunset) missing for this reason are counted usually as equal to or greater than the median. Other characteristics missing because of E are omitted from the median count.

Values missing because of G are counted:

1. For foF2, as equal to or less than foF1.
2. For h'F2, as equal to or greater than the median.

The symbol W is included in the median count only when it replaces a height characteristic; the descriptive symbol D, only when it replaces a frequency characteristic.

Values missing for any other reason are omitted from the median count.

c. For MUF factor (M-factors):

Values missing because of G or W are counted as equal to or less than the median.

Values missing for any other reason are omitted from the median count.

d. For sporadic E (Es):

Values of fEs missing because of E or G (and B when applied to the daytime E region only) are counted as equal to or less than the median foE, or equal to or less than the lower frequency limit of the recorder.

At night B for fEs is counted on the low side when there is a numerical value of foF2; otherwise it is omitted from the median count.

Values of fEs missing for any other reason, and values of h'Es missing for any reason at all are omitted from the median count.

Beginning with data for November 1945, doubtful monthly median values for ionospheric observations at Washington, D. C., are indicated by parentheses, in accordance with the practice already in use for doubtful hourly values. The following are the conventions used to determine whether or not a median value is doubtful:

1. If the count is four or less, the data are considered insufficient and no median value is computed.

2. For the F2 layer, h'F or foEs, if the count is from five to nine, the median is considered doubtful. The E and F1 layers are so regular in their characteristics that, as long as the count is at least five, the median is not considered doubtful. A count of at least 5 is considered sufficient for an h'Es median.

3. For all layers, if more than half of the data used to compute the medians are doubtful (either doubtful or interpolated), the median is considered doubtful.

The same conventions are used by the CRPL in computing the medians from tabulations of daily and hourly data for stations other than Washington, beginning with the tables in IRPL-F18.

The tables and graphs of ionospheric data are correct for the values reported to the CRPL, but, because of variations in practice in the interpretation of records and scaling and manner of reporting values, may at times give an erroneous conception of typical ionospheric characteristics at the station. Some of the errors are due to:

a. Differences in scaling records when spread echoes are present.

b. Omission of values when foF2 is less than or equal to foF1, leading to erroneously high values of monthly averages or median values.

c. Omission of values when critical frequencies are less than the lower frequency limit of the recorder, also leading to erroneously high values of monthly average or median values.

These effects were discussed on pages 6 and 7 of the previous F-series report IRPL-F5.

Ordinarily, a blank space in the fEs or foEs column of a table is the result of the fact that a majority of the readings for the month are below the lower limit of the recorder or less than the corresponding values of foE. Blank spaces at the beginning and end of columns of h'F2 or h'F1, foF1, h'E, and foE are usually the result of diurnal variation in these characteristics. Complete absence of medians of h'F1 and foF1 is usually the result of seasonal effects.

The dashed-line prediction curves of the graphs of ionospheric data are obtained from the predicted zero-muf contour charts of the CRPL-D series publications. The following points are worthy of note:

a. Predictions for individual stations used to construct the charts may be more accurate than the values read from the charts since some smoothing of the contours is necessary to allow for the longitude effect within a zone. Thus, inasmuch as the predicted contours are for the center of each zone, part of the discrepancy between the predicted and observed values as given in the F series may be caused by the fact that the station is not centrally located within the zone.

b. The final presentation of the predictions is dependent upon the latest available ionospheric and radio propagation data, as well as upon predicted sunspot number.

c. There is no indication on the graphs of the relative reliability of the data; it is necessary to consult the tables for such information.

d. The tables may contain median values of either foEs or fEs. The graph of median Es corresponds to the table. Percentage curves of fEs are estimated from values of foEs when necessary.

## PREDICTED AND OBSERVED SUNSPOT NUMBERS

The following predicted smoothed 12-month running-average Zürich sunspot numbers were used in constructing the contour charts:

| Month | Predicted Sunspot Number | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1957 | 1956 | 1955 | 1954 | 1953 | 1952 | 1951 | 1950 | 1949 | 1948 | 1947 |
| December | | 150 | 42 | 11 | 15 | 33 | 53 | 86 | 108 | 114 | 126 |
| November | | 147 | 35 | 10 | 16 | 38 | 52 | 87 | 112 | 115 | 124 |
| October | 150* | 135 | 31 | 10 | 17 | 43 | 52 | 90 | 114 | 116 | 119 |
| September | 150* | 119 | 30 | 8 | 18 | 46 | 54 | 91 | 115 | 117 | 121 |
| August | 150* | 105 | 27 | 8 | 18 | 49 | 57 | 96 | 111 | 123 | 122 |
| July | 150* | 95 | 22 | 8 | 20 | 51 | 60 | 101 | 108 | 125 | 116 |
| June | 150* | 89 | 18 | 9 | 21 | 52 | 63 | 103 | 108 | 129 | 112 |
| May | 150* | 77 | 16 | 10 | 22 | 52 | 68 | 102 | 108 | 130 | 109 |
| April | 150* | 68 | 13 | 10 | 24 | 52 | 74 | 101 | 109 | 133 | 107 |
| March | 150* | 60 | 14 | 11 | 27 | 52 | 78 | 103 | 111 | 133 | 105 |
| February | 150* | 53 | 14 | 12 | 29 | 51 | 82 | 103 | 113 | 133 | 90 |
| January | 150* | 48 | 12 | 14 | 30 | 53 | 85 | 105 | 112 | 130 | 88 |

*This number is believed representative of solar activity at a maximum portion of the current sunspot cycle.

The latest available information follows concerning the corresponding observed Zürich numbers (some of which may be subject to minor change) beginning with the minimum of April 1954.

Observed Sunspot Number

| Month | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1954 | | | | 3 | 4 | 4 | 5 | 7 | 8 | 8 | 9 | 12 |
| 1955 | 14 | 16 | 19 | 23 | 29 | 35 | 40 | 46 | 55 | 64 | 73 | 81 |
| 1956 | 89 | 98 | 109 | 119 | 127 | 137 | 145 | 148 | 149 | 154 | | |

# WORLD-WIDE SOURCES OF IONOSPHERIC DATA

The ionospheric data given here in tables 1 to 72 and figures 1 to 144 were assembled by the Central Radio Propagation Laboratory for analysis and correlation, incidental to CRPL prediction of radio propagation conditions. The data are median values unless otherwise indicated. The following are the sources of the data in this issue:

Republica Argentina, Ministerio de Marina:
- Buenos Aires, Argentina
- Decepcion I.

Commonwealth of Australia, Ionospheric Prediction Service of the Commonwealth Observatory:
- Brisbane, Australia
- Canberra, Australia
- Hobart, Tasmania
- Townsville, Australia

Australian Department of Supply and Shipping, Bureau of Mineral Resources, Geology and Geophysics:
- Watheroo, Western Australia

Meteorological Service of the Belgian Congo and Ruanda-Urundi:
- Elisabethville, Belgian Congo
- Leopoldville, Belgian Congo

Defence Research Board, Canada:
- Baker Lake, Canada
- Churchill, Canada
- Ottawa, Canada
- Resolute Bay, Canada
- Winnipeg, Canada

Radio Wave Research Laboratories, National Taiwan University, Taipeh, Formosa, China:
- Formosa, China

Institute for Ionospheric Research, Lindau Uber Northeim, Hannover, Germany:
- Lindau/Harz, Germany

The Royal Netherlands Meteorological Institute:
- De Bilt, Holland

Ministry of Postal Services, Radio Research Laboratories, Tokyo, Japan:
- Akita, Japan
- Tokyo (Kokubunji), Japan

Wakkanai, Japan
Yamagawa, Japan

Christchurch Geophysical Observatory, New Zealand Department of Scientific and Industrial Research:
Christchurch, New Zealand
Rarotonga, Cook Is.

Norwegian Defence Research Establishment, Kjeller per Lillestrom, Norway:
Oslo, Norway
Tromso, Norway

South African Council for Scientific and Industrial Research:
Capetown, Union of South Africa
Johannesburg, Union of South Africa

Research Institute of National Defence, Stockholm, Sweden:
Kiruna, Sweden
Upsala, Sweden
Lycksele, Sweden

Royal Board of Swedish Telegraphs, Radio Department, Stockholm, Sweden:
Lulea, Sweden

Post, Telephone and Telegraph Administration, Berne, Switzerland:
Schwarzenburg, Switzerland

United States Army Signal Corps:
Adak, Alaska
Okinawa I.
Thule, Greenland
White Sands, New Mexico

National Bureau of Standards (Central Radio Propagation Laboratory):
Fairbanks, Alaska (Geophysical Institute of the University of Alaska)
Huancayo, Peru (Instituto Geofisico de Huancayo)
Narsarssuak, Greenland
Panama Canal Zone
San Francisco, California (Stanford University)
Talara, Peru (Instituto Geofisico de Huancayo)
Washington, D. C.

## HOURLY IONOSPHERIC DATA AT WASHINGTON, D. C.

The data given in tables 73 through 84 follow the scaling practices given in the report IRPL-C61, "Report of International Radio Propagation Conference," pages 36 to 39, and the median values are determined by the conventions given above under "Symbols, Terminology, Conventions." Beginning with September 1949, the data are taken at Ft. Belvoir, Virginia.

The interpretation of a cell is as follows: $\begin{matrix} U\ F \\ 32 \end{matrix}$

The U is a qualifying symbol meaning doubtful. Other qualifying symbols are I, interpolated, D, greater than, E, less than, J, ordinary component deduced from extraordinary, and T, value determined by a sequence of observations. Absence of a letter in the upper left position means full weight is given to the observation.

Symbols such as F above are given in the upper right position.

There should be no difficulty in the placing of the decimal point. For the time being, a final zero will be found in each value of foF1. Thus at a later date it will be possible to register more closely scaled values of this characteristic, whenever such are reported.

### ERRATA

1. CRPL-F152 (Part A), p. 47, fig. 35: Consult table for middle-of-the-day values of foE and foEs.

2. CRPL-F152 (Part A), p. 64, fig. 103: At 00 hour, reading on both ends of foF2 should be 6.7.

3. Disregard prediction curves for foF2, Sao Paulo, Brazil, which have appeared in CRPL-F (Part A) through CRPL-F150.

EXAMPLES OF IONOSPHERIC VERTICAL SOUNDINGS
PANAMA, C.Z.; JAN. 16, 1957

The following ionograms were obtained at the Panama, C.Z. ionosphere vertical sounding station of the U. S. National Bureau of Standards. They are typical of day and night conditions for January at this geomagnetic latitude (20°N). Ionospheric data are scaled directly from these records onto the f-plot, a graph of frequency characteristics vs. time. The f-plot for the day represented by these soundings is found on the following page.

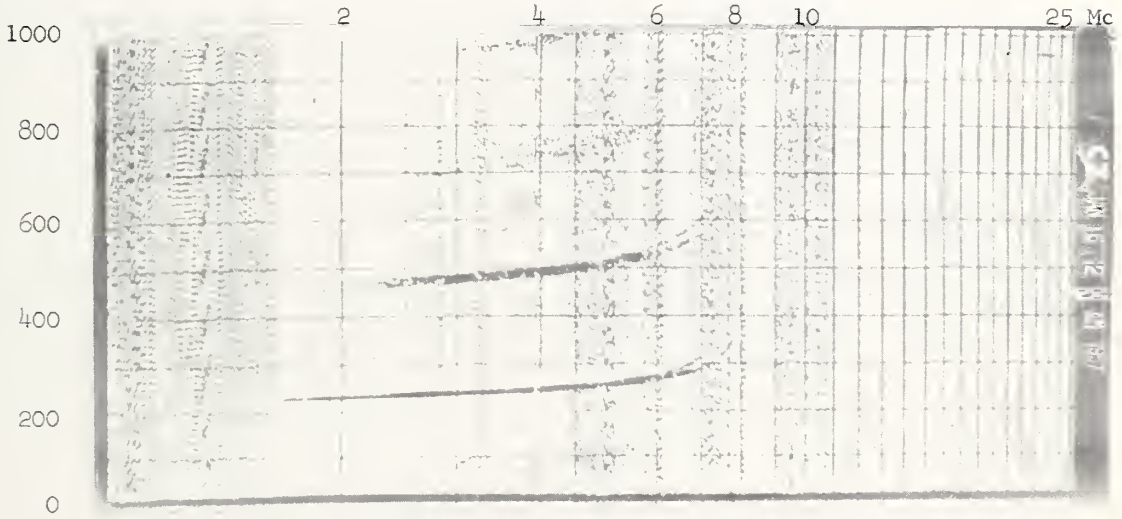



Fig. A. Panama, C.Z., Jan. 16, 1957, 0000 hour, 75°W time.

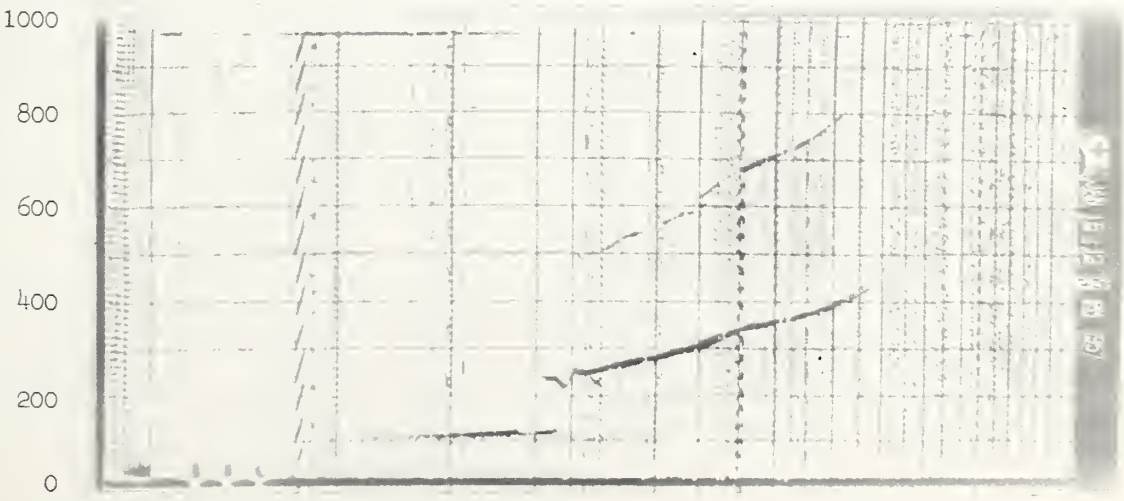
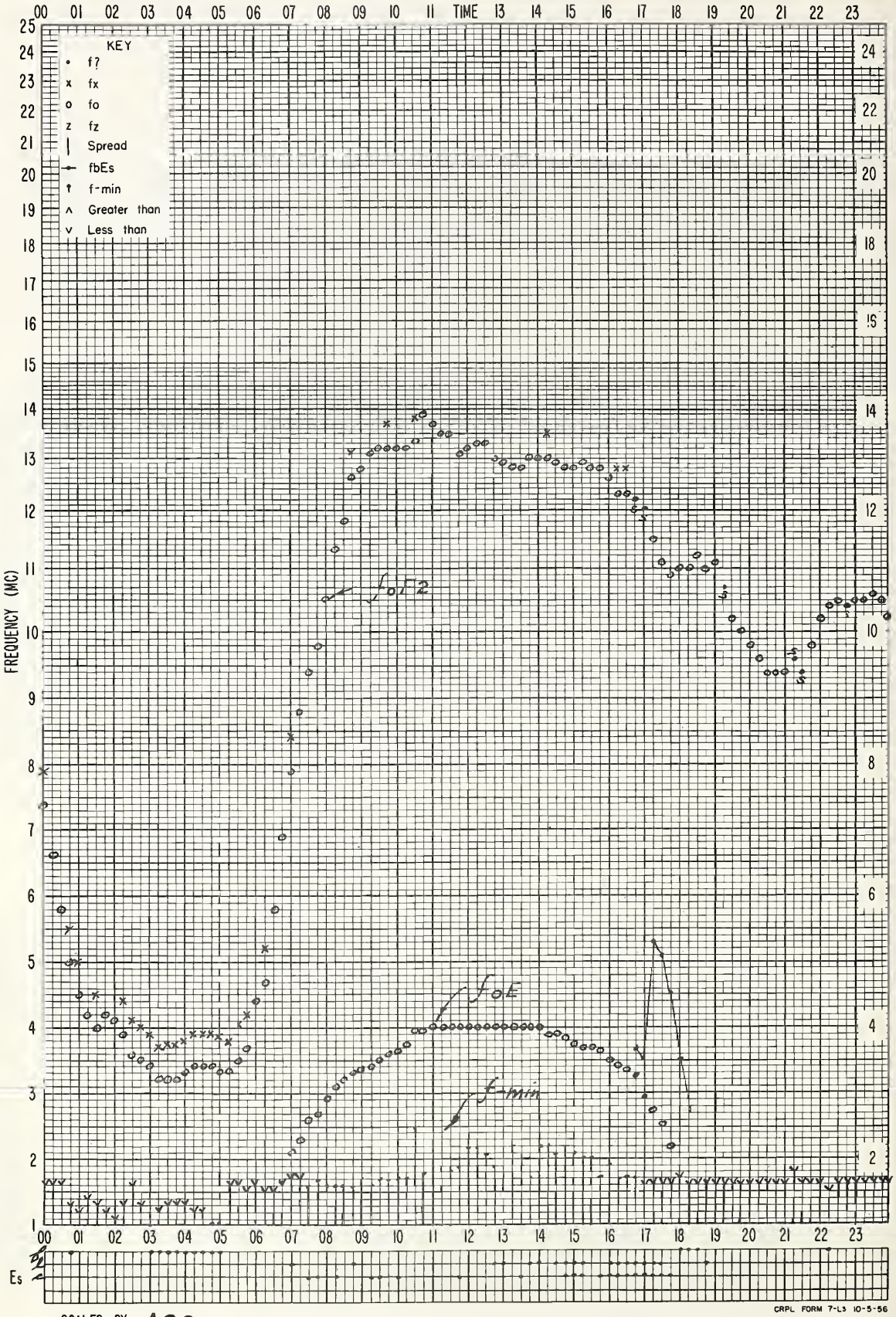



Fig. B. Panama, C.Z., Jan. 16, 1957, 1200 hours, 75°W time.

STATION Panama 75°W. f - PLOT OF IONOSPHERIC DATA DATE 16 Jan. 1957




SCALED BY A.P.C.

CRPL FORM 7-L3 10-5-56

Commerce-Standards-Boulder, Colo.

## Radio Noise Data

The results of radio noise measurements are presented in the following graphs and tables. These are based on three parameters of the noise: (1) the mean power, (2) the mean envelope voltage, and (3) the mean logarithm of the envelope voltage. The mean power averaged over a period of several minutes is the basic parameter and is expressed as an effective antenna noise figure, $F_a$. $F_a$ is defined as the noise power available from an equivalent lossless antenna in db above ktb (the thermal noise power available from a passive resistance) where

k = Boltzman's constant ($1.38 \times 10^{-23}$ joules per degree Kelvin)

t = Absolute room temperature (taken as $288^{\circ}$ K)

b = Bandwidth in cycles per second.

The mean voltage and mean logarithm are expressed as deviations, $V_d$ and $L_d$ respectively, in db below the mean power.

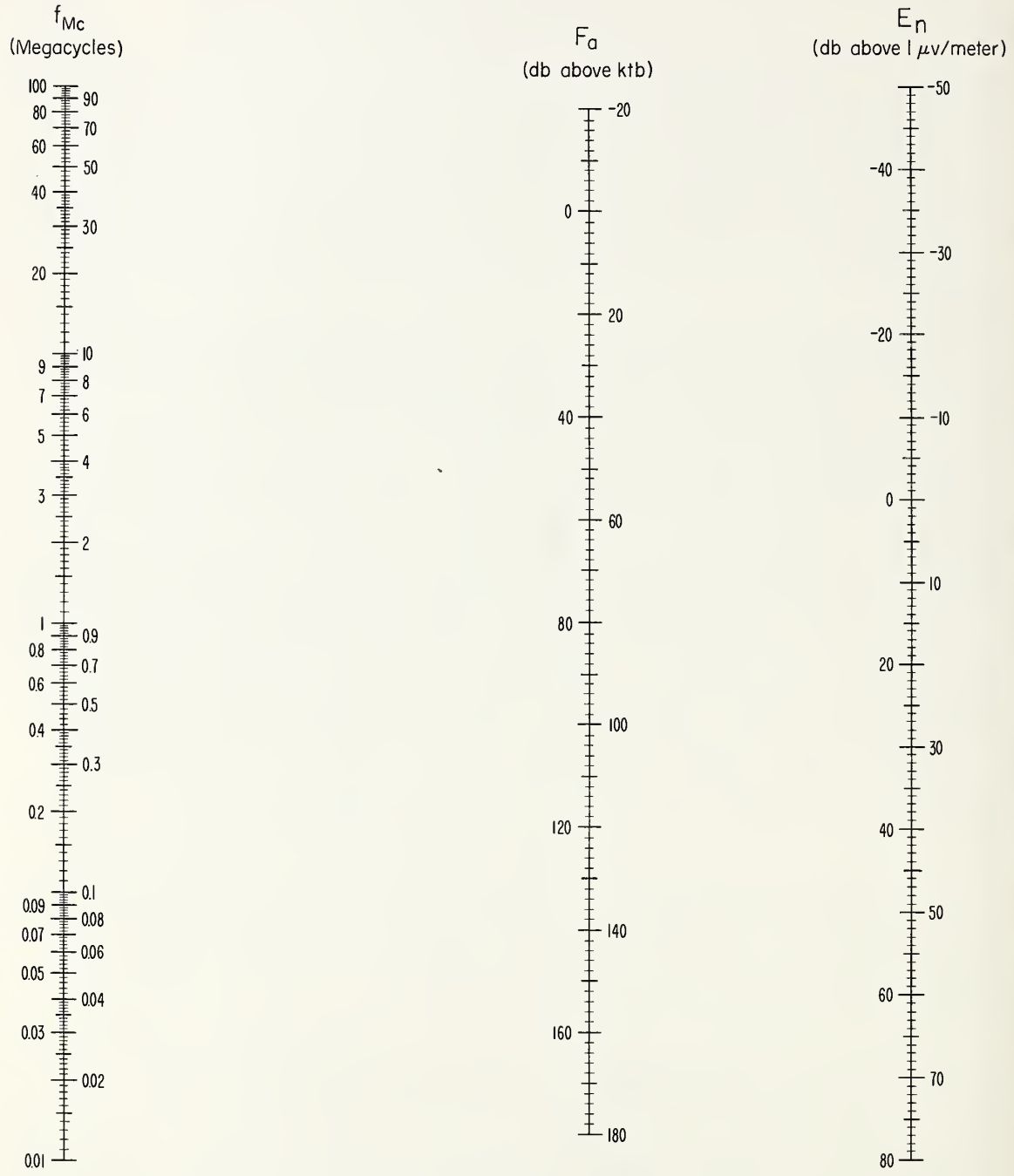
Measurements of these parameters were made with the National Bureau of Standards Radio Noise Recorder, Model ARN-2, which has an effective noise bandwidth of 280 cycles per second and uses a standard 21.75' vertical antenna. A 15 minute recording is made on each frequency each hour, and these 15 minute samples are taken as representing the noise conditions for the full hour. The month-hour medians, $F_{am}$, $V_{dm}$, and $L_{dm}$ are determined from these hourly values for each of the corresponding parameters and the resulting medians are plotted at the half-hour point on the curves.

The upper and lower decile values of $F_a$ are also reported in the following tabulation to give an indication of the extent of the variation of the noise power from day to day at a given time of day. These are expressed in db above and below the month-hour median, $F_{am}$, and designated by $D_u$ and $D_\ell$ respectively.

To convert $F_a$ to an r.m.s. noise field strength, $E_n$, the nomogram or the equation on the following page may be used.

Information on expected worldwide noise levels and their application to systems problems is presented in NBS Circular 557 (available from the Supt. of Documents, U. S. Govt. Printing Office, Washington 25, D. C.) More recent estimates of radio noise levels are given in CCIR Report No. 65, "Report on Revision of Atmospheric Radio Noise Data", Warsaw, 1956 (available from the International Telecommunication Union, Geneva).

# NOMOGRAM FOR TRANSFORMING EFFECTIVE ANTENNA NOISE FIGURE TO NOISE FIELD STRENGTH AS A FUNCTION OF FREQUENCY




$$E_n = F_a + 20 \log_{10} f_{Mc} - 65.5$$

$F_a$ = Effective Antenna Noise Figure = External Noise Power Relative to ktb Available from an Equivalent Short, Lossless, Vertical Antenna in db Above ktb.

$E_n$ = Equivalent Vertically Polarized Ground Wave R.M.S. Noise Field Strength in db Above 1 μv/meter for a 1 kc Bandwidth.

$f_{Mc}$ = Frequency in Megacycles.

# RADIO NOISE DATA

Station Bill, Wyoming Lat. 43.2° N Long. 105.2° W Type Recorder ARN-2 Month Feb. 7 to March 8 19 57

Local Mean Time

| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 510kc | | | | | | | | | | | | | | | | | | | | | | | |
| $F_{am}$ | 124 | 124 | 124 | 124 | 124 | 126 | 120 | 118 | 116 | 114 | 114 | 114 | *115 | *117 | 118 | 118 | 118 | 116 | 118 | 120 | 120 | 120 | 120 | 122 |
| $D_u$ | 6 | 6 | 8 | 8 | 6 | 4 | 4 | 4 | 4 | 6 | 6 | 8 | | | 2 | 4 | 4 | 10 | 8 | 8 | 8 | 10 | 10 | 8 |
| $D_\ell$ | 8 | 8 | 8 | 6 | 6 | 10 | 6 | 10 | 10 | 10 | 8 | 10 | | | 10 | 10 | 14 | 6 | 6 | 6 | 4 | 4 | 4 | 6 |
| $V_{dm}$ | | | | | | | | | | | | | | | | | | | | | | | | |
| $L_{dm}$ | | | | | | | | | | | | | | | | | | | | | | | | |
| | 113kc | | | | | | | | | | | | | | | | | | | | | | | |
| $F_{am}$ | 110 | 112 | 112 | 112 | 110 | 110 | 104 | 102 | 102 | 102 | 102 | 102 | *103 | *103 | 100 | 104 | 102 | 102 | 106 | 106 | 106 | 106 | 106 | 108 |
| $D_u$ | 6 | 4 | 4 | 6 | 6 | 8 | 4 | 6 | 6 | 6 | 6 | 4 | | | 8 | 4 | 6 | 6 | 6 | 8 | 6 | 10 | 10 | 8 |
| $D_\ell$ | 12 | 12 | 16 | 8 | 8 | 14 | 10 | 8 | 8 | 8 | 10 | 8 | | | 14 | 16 | 16 | 10 | 10 | 6 | 4 | 8 | 6 | 6 |
| $V_{dm}$ | | | | | | | | | | | | | | | | | | | | | | | | |
| $L_{dm}$ | | | | | | | | | | | | | | | | | | | | | | | | |
| | 246kc | | | | | | | | | | | | | | | | | | | | | | | |
| $F_{am}$ | 95 | 97 | 95 | 93 | 93 | 91 | 91 | 89 | 91 | 89 | 89 | 89 | *91 | *89 | 89 | 91 | 89 | 89 | 91 | 91 | 91 | 93 | 93 | 95 |
| $D_u$ | 6 | 6 | 6 | 8 | 6 | 8 | 8 | 8 | 4 | 6 | 6 | 4 | | | 8 | 6 | 6 | 4 | 6 | 8 | 8 | 6 | 6 | 4 |
| $D_\ell$ | 6 | 10 | 8 | 4 | 6 | 6 | 6 | 4 | 8 | 4 | 4 | 4 | | | 4 | 22 | 6 | 6 | 6 | 4 | 6 | 8 | 6 | 6 |
| $V_{dm}$ | | | | | | | | | | | | | | | | | | | | | | | | |
| $L_{dm}$ | | | | | | | | | | | | | | | | | | | | | | | | |
| | 545kc | | | | | | | | | | | | | | | | | | | | | | | |
| $F_{am}$ | 83 | 81 | 81 | 79 | 81 | 79 | 71 | 67 | 67 | 69 | 67 | 69 | *69 | *69 | 67 | 67 | 67 | 69 | 73 | 77 | 81 | 81 | 83 | 81 |
| $D_u$ | 6 | 10 | 8 | 12 | 6 | 6 | 10 | 4 | 10 | 2 | 6 | 4 | | | 8 | 4 | 4 | 6 | 6 | 4 | 6 | 8 | 6 | 6 |
| $D_\ell$ | 4 | 8 | 6 | 6 | 10 | 6 | 6 | 4 | 2 | 4 | 4 | 4 | | | 4 | 2 | 2 | 4 | 6 | 10 | 14 | 8 | 8 | 6 |
| $V_{dm}$ | | | | | | | | | | | | | | | | | | | | | | | | |
| $L_{dm}$ | | | | | | | | | | | | | | | | | | | | | | | | |
| | 2.5Mc | | | | | | | | | | | | | | | | | | | | | | | |
| $F_{am}$ | 53 | 57 | 55 | 53 | 53 | 49 | 43 | 35 | 29 | 21 | 21 | 21 | *22 | *22 | 21 | 21 | 23 | 33 | 43 | 49 | 51 | 51 | 51 | 53 |
| $D_u$ | 10 | 6 | 10 | 6 | 6 | 14 | 14 | 8 | 8 | 6 | 8 | 8 | | | 6 | 10 | 10 | 12 | 14 | 12 | 8 | 10 | 8 | 10 |
| $D_\ell$ | 8 | 14 | 10 | 8 | 10 | 8 | 6 | 12 | 8 | 2 | 4 | 4 | | | 4 | 2 | 4 | 6 | 6 | 10 | 8 | 6 | 6 | 8 |
| $V_{dm}$ | | | | | | | | | | | | | | | | | | | | | | | | |
| $L_{dm}$ | | | | | | | | | | | | | | | | | | | | | | | | |
| | 5Mc | | | | | | | | | | | | | | | | | | | | | | | |
| $F_{am}$ | 56 | 56 | 58 | 58 | 56 | 54 | 48 | 38 | 28 | 26 | 26 | 26 | *27 | *24 | 26 | 28 | 32 | 46 | 50 | 52 | 54 | 54 | 54 | 54 |
| $D_u$ | 2 | 4 | 4 | 4 | 6 | 4 | 8 | 8 | 6 | 6 | 4 | 4 | | | 6 | 4 | 8 | 4 | 10 | 10 | 4 | 6 | 6 | 4 |
| $D_\ell$ | 8 | 6 | 8 | 6 | 6 | 6 | 6 | 6 | 4 | 2 | 6 | 2 | | | 14 | 8 | 8 | 10 | 6 | 8 | 8 | 8 | 4 | 6 |
| $V_{dm}$ | | | | | | | | | | | | | | | | | | | | | | | | |
| $L_{dm}$ | | | | | | | | | | | | | | | | | | | | | | | | |
| | 10Mc | | | | | | | | | | | | | | | | | | | | | | | |
| $F_{am}$ | 44 | 44 | 42 | 44 | 42 | 40 | 38 | 36 | 30 | 28 | 24 | 24 | *24 | 26 | 28 | 34 | 40 | 42 | 44 | 44 | 44 | 44 | 44 | 44 |
| $D_u$ | 4 | 4 | 4 | 2 | 4 | 6 | 6 | 4 | 4 | 2 | 2 | 2 | | 4 | 4 | 6 | 4 | 6 | 4 | 4 | 6 | 4 | 4 | 6 |
| $D_\ell$ | 6 | 6 | 2 | 8 | 4 | 6 | 4 | 4 | 2 | 4 | 2 | 2 | | 4 | 2 | 6 | 10 | 4 | 6 | 6 | 4 | 6 | 4 | 4 |
| $V_{dm}$ | | | | | | | | | | | | | | | | | | | | | | | | |
| $L_{dm}$ | | | | | | | | | | | | | | | | | | | | | | | | |
| | 20Mc | | | | | | | | | | | | | | | | | | | | | | | |
| $F_{am}$ | | | | | | | | | | | | | | | | | | | | | | | | |
| $D_u$ | | | | | | | | | | | | | | | | | | | | | | | | |
| $D_\ell$ | | | | | | | | | | | | | | | | | | | | | | | | |
| $V_{dm}$ | | | | | | | | | | | | | | | | | | | | | | | | |
| $L_{dm}$ | | | | | | | | | | | | | | | | | | | | | | | | |

*Average of less than 15 observations.

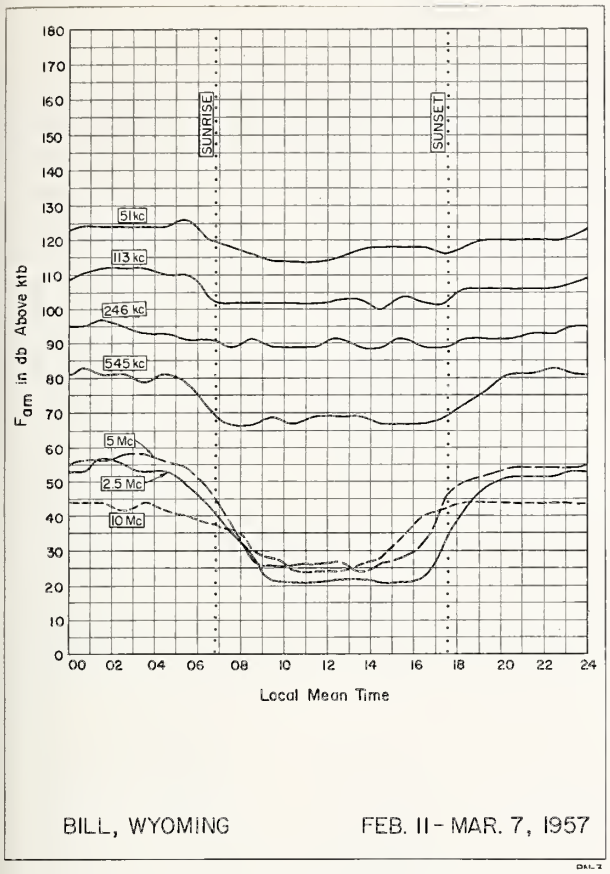
# RADIO NOISE DATA

Station Boulder, Colorado Lat. 40. 1° N Long. 105. 1° W Type Recorder ARN-2 Month February 1957

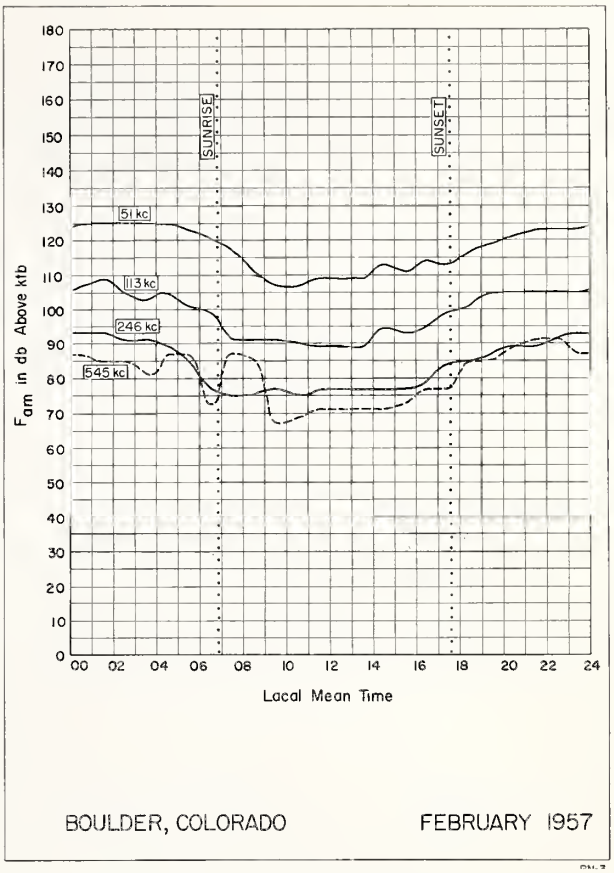
| | Local Mean Time | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| | 51 kc | | | | | | | | | | | | | | | | | | | | | | | |
| $F_{am}$ | 125 | 125 | 125 | 125 | 125 | 123 | 121 | 117 | 111 | 107 | 107 | 109 | 109 | 109 | 113 | 111 | 114 | 113 | 117 | 119 | 121 | 123 | 123 | 123 |
| $D_u$ | 6 | 6 | 8 | 8 | 8 | 10 | 4 | 10 | 8 | 12 | 14 | 14 | 14 | 14 | 13 | 13 | 13 | 14 | 14 | 12 | 10 | 8 | 4 | 4 |
| $D_\ell$ | 10 | 8 | 6 | 6 | 6 | 4 | 6 | 6 | 4 | 4 | 4 | 6 | 4 | 5 | 7 | 7 | 9 | 8 | 10 | 8 | 6 | 8 | 8 | 6 |
| $V_{dm}$ | 9 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 6 | 4 | *5 | *6 | *6 | *6 | *6 | *6 | 9 | 7 | 8 | 8 | 8 | 8 | 10 | 10 |
| $L_{dm}$ | 15 | 15 | 14 | 13 | 14 | 13 | 13 | 12 | 8 | 8 | *9 | *11 | *11 | *10 | *11 | *9 | *12 | *12 | *13 | *14 | *15 | *15 | *16 | *16 |
| | 113 kc | | | | | | | | | | | | | | | | | | | | | | | |
| $F_{am}$ | 107 | 109 | 105 | 103 | 105 | 101 | 99 | 91 | 91 | 91 | 90 | 89 | 89 | 89 | 94 | 93 | 95 | 99 | 101 | 105 | 105 | 105 | 105 | 105 |
| $D_u$ | 12 | 10 | 14 | 16 | 14 | 18 | 10 | 10 | 16 | 15 | 15 | 10 | 12 | 12 | 9 | 14 | 8 | 12 | 14 | 12 | 12 | 10 | 12 | 12 |
| $D_\ell$ | 12 | 12 | 10 | 8 | 10 | 10 | 8 | 4 | 4 | 4 | 3 | 2 | 1 | 0 | 5 | 4 | 6 | 8 | 10 | 14 | 10 | 12 | 10 | 10 |
| $V_{dm}$ | 8 | 8 | 8 | 8 | 8 | 7 | 6 | 4 | 3 | 4 | *4 | *4 | *4 | *4 | *4 | *4 | *6 | 7 | 6 | 7 | 8 | 8 | 8 | 8 |
| $L_{dm}$ | 12 | 14 | 14 | 12 | 12 | 12 | 9 | 7 | 7 | *8 | *8 | *8 | *7 | *7 | *7 | *8 | *9 | *11 | *11 | *12 | *14 | *13 | *14 | *14 |
| | 246 kc | | | | | | | | | | | | | | | | | | | | | | | |
| $F_{am}$ | 93 | 93 | 91 | 91 | 89 | 85 | 77 | 75 | 75 | 77 | 75 | 77 | 77 | 77 | 77 | 77 | 79 | 84 | 85 | 87 | 89 | 89 | 91 | 93 |
| $D_u$ | 12 | 12 | 12 | 12 | 14 | 16 | 10 | 6 | 6 | 4 | 6 | 2 | 2 | 4 | 4 | 6 | 6 | 9 | 14 | 12 | 12 | 12 | 12 | 12 |
| $D_\ell$ | 12 | 14 | 12 | 14 | 14 | 10 | 2 | 2 | 2 | 3 | 2 | 3 | 2 | 2 | 2 | 2 | 4 | 7 | 8 | 10 | 10 | 10 | 12 | 12 |
| $V_{dm}$ | 6 | 6 | 6 | 6 | 7 | 4 | 4 | 4 | 4 | *3 | *3 | *3 | *3 | *4 | *3 | *3 | *4 | 4 | 5 | 6 | 7 | *8 | 6 | 6 |
| $L_{dm}$ | 11 | 11 | 11 | 10 | 12 | 10 | 7 | 7 | 6 | *6 | *5 | *5 | *5 | *6 | *5 | *6 | *6 | *8 | *9 | *10 | *11 | *12 | *12 | *12 |
| | 545 kc | | | | | | | | | | | | | | | | | | | | | | | |
| $F_{am}$ | 87 | 85 | 85 | 81 | 87 | 87 | 73 | 87 | 85 | 67 | 69 | 71 | 71 | 71 | 71 | 73 | 77 | 77 | 85 | 85 | 89 | 91 | 91 | 87 |
| $D_u$ | 6 | 6 | 5 | 10 | 6 | 4 | 10 | 8 | 6 | 14 | 14 | 8 | 7 | 12 | 8 | 6 | 8 | 6 | 8 | 6 | 6 | 4 | 4 | 4 |
| $D_\ell$ | 14 | 14 | 15 | 16 | 14 | 13 | 10 | 19 | 15 | 2 | 6 | 4 | 3 | 4 | 17 | 7 | 17 | 18 | 12 | 22 | 13 | 11 | 15 | 8 |
| $V_{dm}$ | *6 | *5 | *6 | *5 | *6 | *4 | *4 | *3 | *3 | *3 | *3 | *2 | *3 | *4 | *2 | *3 | *6 | *4 | *4 | *4 | *3 | *4 | *4 | *6 |
| $L_{dm}$ | *11 | *11 | *10 | *9 | *9 | *7 | *6 | *7 | *8 | *5 | *6 | *4 | *5 | *7 | *5 | *4 | *10 | *8 | *7 | *8 | *8 | *6 | *7 | *10 |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| $F_{am}$ | | | | | | | | | | | | | | | | | | | | | | | | |
| $D_u$ | | | | | | | | | | | | | | | | | | | | | | | | |
| $D_\ell$ | | | | | | | | | | | | | | | | | | | | | | | | |
| $V_{dm}$ | | | | | | | | | | | | | | | | | | | | | | | | |
| $L_{dm}$ | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| $F_{am}$ | | | | | | | | | | | | | | | | | | | | | | | | |
| $D_u$ | | | | | | | | | | | | | | | | | | | | | | | | |
| $D_\ell$ | | | | | | | | | | | | | | | | | | | | | | | | |
| $V_{dm}$ | | | | | | | | | | | | | | | | | | | | | | | | |
| $L_{dm}$ | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| $F_{am}$ | | | | | | | | | | | | | | | | | | | | | | | | |
| $D_u$ | | | | | | | | | | | | | | | | | | | | | | | | |
| $D_\ell$ | | | | | | | | | | | | | | | | | | | | | | | | |
| $V_{dm}$ | | | | | | | | | | | | | | | | | | | | | | | | |
| $L_{dm}$ | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| $F_{am}$ | | | | | | | | | | | | | | | | | | | | | | | | |
| $D_u$ | | | | | | | | | | | | | | | | | | | | | | | | |
| $D_\ell$ | | | | | | | | | | | | | | | | | | | | | | | | |
| $V_{dm}$ | | | | | | | | | | | | | | | | | | | | | | | | |
| $L_{dm}$ | | | | | | | | | | | | | | | | | | | | | | | | |

*Average of less than 15 observations

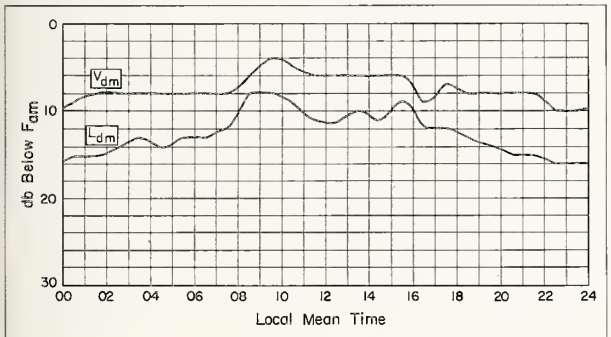
# GRAPHS OF RADIO NOISE DATA




BILL, WYOMING FEB. 11 - MAR. 7, 1957

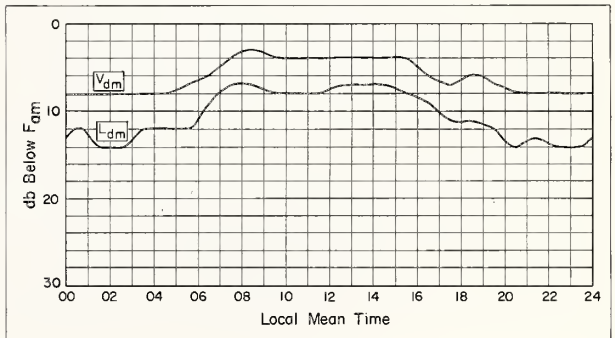



BOULDER, COLORADO FEBRUARY 1957



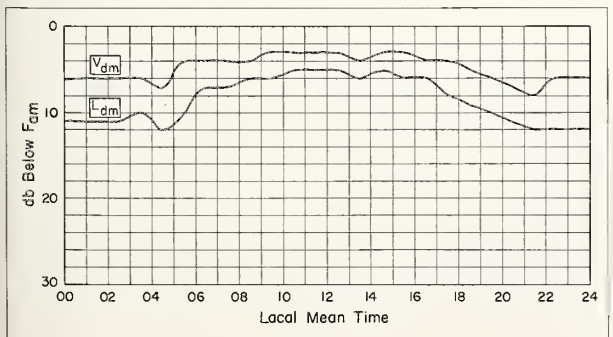

51 kc

BOULDER, COLORADO FEBRUARY 1957




113 kc

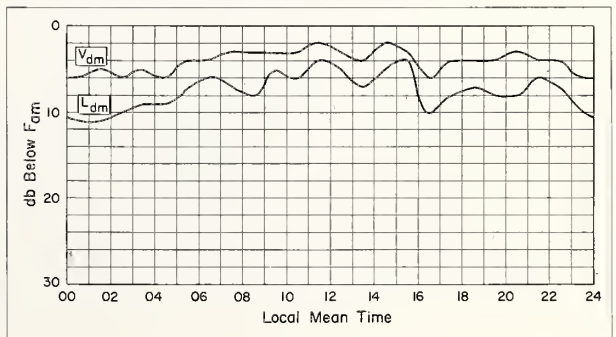
BOULDER, COLORADO FEBRUARY 1957




246 kc

BOULDER, COLORADO FEBRUARY 1957

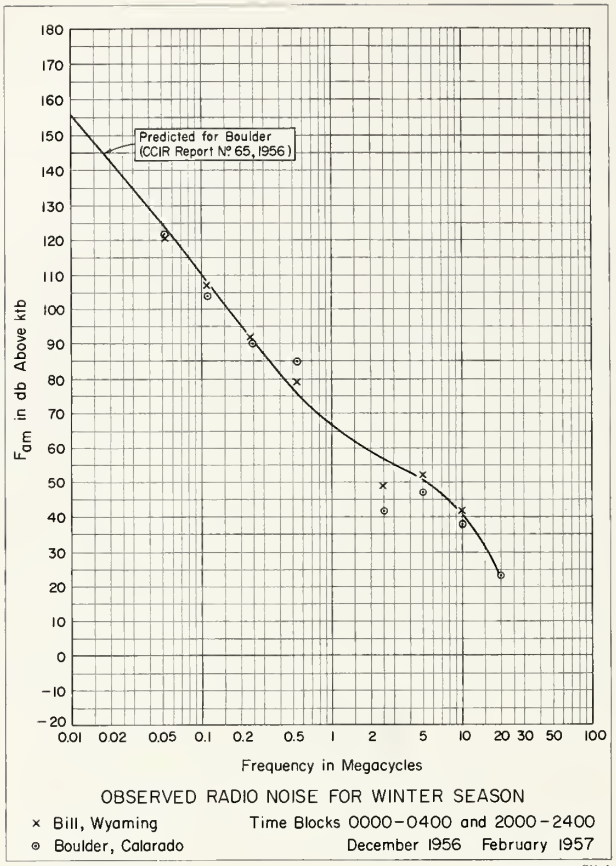
RN-2




545 kc

BOULDER, COLORADO FEBRUARY 1957

RN-2




SEASONAL TIME BLOCK VALUES OF RADIO NOISE

LAT 43N LONG 105W STATION BILL, WYOMING SEASON Winter (Dec. – Feb.*) 19 56-57

| | TIME BLOCKS (LMT) | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0000–0400 | | | 0400–0800 | | | 0800–1200 | | | 1200–1600 | | | 1600–2000 | | | 2000–2400 | | |
| FREQUENCY (Mc) | $F_{am}$ | $D_u$ | $D_\ell$ | $F_{am}$ | $D_u$ | $D_\ell$ | $F_{am}$ | $D_u$ | $D_\ell$ | $F_{am}$ | $D_u$ | $D_\ell$ | $F_{am}$ | $D_u$ | $D_\ell$ | $F_{am}$ | $D_u$ | $D_\ell$ |
| .051 | 122 | 8 | 6 | 120 | 7 | 4 | 114 | 7 | 7 | 116 | 5 | 10 | 118 | 8 | 8 | 120 | 9 | 4 |
| .113 | 108 | 7 | 8 | 105 | 8 | 10 | 102 | 6 | 7 | 103 | 6 | 16 | 105 | 7 | 8 | 106 | 8 | 5 |
| .246 | 92 | 6 | 6 | 89 | 9 | 6 | 89 | 8 | 6 | 89 | 7 | 12 | 91 | 6 | 7 | 92 | 8 | 7 |
| .645 | 78 | 8 | 7 | 76 | 7 | 6 | 69 | 6 | 4 | 68 | 6 | 6 | 76 | 7 | 6 | 80 | 8 | 7 |
| 2.6 | 60 | 11 | 8 | 45 | 11 | 8 | 25 | 7 | 4 | 22 | 9 | 5 | 37 | 14 | 8 | 46 | 11 | 6 |
| 6.0 | 55 | 6 | 6 | 46 | 7 | 6 | 28 | 6 | 5 | 26 | 6 | 9 | 44 | 7 | 7 | 61 | 7 | 8 |
| 10.0 | 41 | 4 | 6 | 37 | 6 | 6 | 26 | 4 | 6 | 28 | 6 | 6 | 41 | 6 | 6 | 42 | 6 | 4 |

LAT 40N LONG 105W STATION BOULDER, COLORADO SEASON Winter (Dec.–Feb.**) 1956-57

| | TIME BLOCKS (LMT) | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0000–0400 | | | 0400–0800 | | | 0800–1200 | | | 1200–1600 | | | 1600–2000 | | | 2000–2400 | | |
| FREQUENCY (Mc) | $F_{am}$ | $D_u$ | $D_\ell$ | $F_{am}$ | $D_u$ | $D_\ell$ | $F_{am}$ | $D_u$ | $D_\ell$ | $F_{am}$ | $D_u$ | $D_\ell$ | $F_{am}$ | $D_u$ | $D_\ell$ | $F_{am}$ | $D_u$ | $D_\ell$ |
| .051 | 124 | 7 | 6 | 122 | 6 | 4 | 110 | 10 | 4 | 110 | 12 | 6 | 114 | 12 | 7 | 121 | 6 | 6 |
| .118 | 105 | 12 | 8 | 99 | 11 | 7 | 88 | 14 | 5 | 86 | 14 | 5 | 97 | 16 | 7 | 103 | 15 | 7 |
| .246 | 91 | 10 | 9 | 85 | 9 | 6 | 76 | 6 | 4 | 79 | 6 | 4 | 82 | 14 | 6 | 89 | 10 | 6 |
| .645 | 82 | 8 | 9 | 85 | 7 | 10 | 76 | 6 | 6 | 74 | 6 | 6 | 85 | 6 | 10 | 88 | 6 | 6 |
| 2.6 ** | 42 | 7 | 3 | 41 | 6 | 5 | 56 | 6 | 4 | 56 | 5 | 2 | 59 | 7 | 5 | 42 | 6 | 4 |
| 6.0 ** | 46 | 4 | 4 | 46 | 6 | 4 | 55 | 5 | 4 | 55 | 4 | 5 | 42 | 6 | 4 | 46 | 6 | 4 |
| 10.0 ** | 56 | 6 | 4 | 56 | 6 | 4 | 27 | 5 | 2 | 61 | 4 | 6 | 58 | 6 | 4 | 59 | 4 | 5 |
| 20.0 ** | 25 | 4 | 0 | 24 | 3 | 1 | 26 | 6 | 2 | 52 | 20 | 6 | 60 | 20 | 4 | 25 | 4 | 1 |

$F_{am}$ = Time block median value of effective antenna noise figure in db above ktb

$D_u$ = Ratio of upper decile to median in db

$D_\ell$ = Ratio of median to lower decile in db

* No data for January; includes 7 days of March

** No data for February these frequencies

Table 1

Washington, D. C. (38.7°N, 77.1°W) April 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 6.5 | 300 | | | | | 2.60 |
| 01 | | 6.1 | 300 | | | | | 2.60 |
| 02 | | 6.0 | 310 | | | | | 2.50 |
| 03 | | 5.6 | 310 | | | | | 2.60 |
| 04 | | 5.2 | 300 | | | | | 2.60 |
| 05 | | 5.1 | 310 | | | | | 2.60 |
| 06 | --- | 6.2 | 275 | | 119 | 1.90 | | 2.90 |
| 07 | --- | 7.2 | 245 | --- | 111 | 2.75 | | 2.90 |
| 08 | (300) | 7.7 | 235 | --- | 109 | 3.10 | | 2.85 |
| 09 | 400 | 8.0 | 225 | 5.4 | 109 | 3.40 | | 2.75 |
| 10 | 430 | 9.1 | 215 | 5.6 | 109 | (3.65) | | 2.65 |
| 11 | 420 | 9.2 | 210 | 5.7 | 109 | 3.75 | | 2.70 |
| 12 | 420 | 9.7 | 220 | 5.8 | 109 | (3.80) | | 2.65 |
| 13 | 440 | 9.8 | 225 | 5.8 | 109 | (3.85) | | 2.60 |
| 14 | 410 | 9.8 | 225 | 5.8 | 109 | (3.70) | | 2.60 |
| 15 | 415 | 9.7 | 230 | 5.7 | 110 | 3.60 | | 2.60 |
| 16 | 400 | 9.6 | 235 | 5.3 | 109 | 3.35 | | 2.60 |
| 17 | (395) | 9.4 | 250 | 4.8 | 111 | 2.85 | | 2.65 |
| 18 | --- | 9.4 | 265 | | 121 | 2.20 | | 2.70 |
| 19 | | 9.2 | 265 | | --- | ----- | | 2.75 |
| 20 | | 8.2 | 260 | | | | | 2.70 |
| 21 | | 7.0 | 270 | | | | (2.4) | 2.65 |
| 22 | | 7.2 | 280 | | | | | 2.60 |
| 23 | | 6.8 | 300 | | | | | 2.60 |

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 2

Lycksele, Sweden (64.6°N, 18.0°E) March 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 5.8 | 340 | | | | 2.3 | 2.65 |
| 01 | | 5.8 | 330 | | | | 2.4 | 2.6 |
| 02 | | 5.6 | 350 | | | | 2.0 | 2.5 |
| 03 | | 5.7 | 330 | | | | | 2.5 |
| 04 | | 5.1 | 300 | | | | | 2.6 |
| 05 | | 5.0 | 200 | | --- | E | | 2.7 |
| 06 | | 5.8 | 260 | | --- | E | | 2.95 |
| 07 | --- | 6.8 | 250 | ---- | 115 | 2.15 | | 2.9 |
| 08 | --- | 7.8 | 245 | ---- | 110 | 2.50 | | 2.95 |
| 09 | (310) | 8.5 | 240 | (4.15) | 110 | 2.80 | | 2.9 |
| 10 | (315) | 9.0 | 240 | ---- | 110 | 3.00 | | 2.9 |
| 11 | (270) | 9.7 | 230 | ---- | 110 | 3.05 | | 2.9 |
| 12 | (260) | 10.1 | 230 | (4.30) | 110 | 3.10 | | 2.9 |
| 13 | --- | 10.0 | 230 | ---- | 110 | 3.10 | | 2.9 |
| 14 | --- | 9.6 | 230 | ---- | 110 | 2.95 | | 3.0 |
| 15 | --- | 9.5 | 230 | ---- | 110 | 2.80 | | 3.0 |
| 16 | | 9.2 | 240 | | 115 | 2.40 | | 3.0 |
| 17 | | 9.0 | 240 | | 120 | 2.10 | | 3.0 |
| 18 | | 7.0 | 255 | | --- | 1.55 | | 2.9 |
| 19 | | 6.6 | 250 | | --- | E | 2.0 | 2.8 |
| 20 | | 6.0 | 290 | | --- | --- | 2.3 | 2.7 |
| 21 | | 5.4 | 310 | | | | 2.4 | 2.5 |
| 22 | | 5.6 | 345 | | | | 2.3 | 2.5 |
| 23 | | 5.6 | 350 | | | | 2.3 | 2.6 |

Time: 15.0°E.
Sweep: 1.4 Mc to 17.0 Mc in 6 minutes, automatic operation.

Table 3

Oslo, Norway (60.0°N, 11.1°E) March 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | (3.8) | 315 | | | | | 2.40 |
| 01 | | (3.9) | 315 | | | | 1.8 | 2.40 |
| 02 | | (4.7) | 325 | | | | (1.8) | (2.40) |
| 03 | | (3.9) | 320 | | | | 1.4 | 2.40 |
| 04 | | 3.8 | 310 | | | | | 2.40 |
| 05 | | 4.0 | 300 | | --- | ----- | | 2.55 |
| 06 | | 4.6 | 260 | | --- | 1.70 | | 2.55 |
| 07 | | 6.0 | 255 | | 120 | 2.10 | | 2.85 |
| 08 | --- | 7.2 | 250 | --- | 115 | 2.50 | | 2.90 |
| 09 | --- | 8.6 | 240 | --- | 110 | 2.85 | | 2.80 |
| 10 | --- | 9.7 | 240 | --- | 110 | 3.10 | | 2.80 |
| 11 | --- | 10.2 | 240 | --- | 110 | 3.30 | | 2.75 |
| 12 | --- | 10.7 | 240 | --- | 110 | 3.30 | | 2.70 |
| 13 | --- | 11.1 | 245 | --- | 110 | 3.35 | | 2.70 |
| 14 | | 11.2 | 240 | --- | 115 | 3.25 | | 2.70 |
| 15 | | 11.0 | 240 | --- | 115 | 3.10 | | 2.70 |
| 16 | | 11.1 | 245 | --- | 120 | 2.85 | | 2.80 |
| 17 | | 10.5 | 250 | | 120 | 2.50 | | 2.85 |
| 18 | | 9.8 | 250 | | --- | 1.90 | | 2.85 |
| 19 | | 8.7 | 245 | | --- | (1.60) | | 2.85 |
| 20 | | 8.0 | 250 | | | | | 2.75 |
| 21 | | 6.7 | 250 | | | | | 2.55 |
| 22 | | 6.1 | 300 | | | | (2.6) | 2.55 |
| 23 | | (4.9) | 340 | | | | (2.1) | 2.40 |

Time: 15.0°E.
Sweep: 0.7 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 4

Upsala, Sweden (59.8°N, 17.6°E) March 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 4.6 | 345 | | | | | 2.4 |
| 01 | | 4.4 | 330 | | | | | 2.5 |
| 02 | | 4.4 | 330 | | | | 1.8 | 2.4 |
| 03 | | 4.0 | 320 | | | | | 2.5 |
| 04 | | 3.7 | 300 | | | | | 2.5 |
| 05 | | 4.0 | 280 | | --- | E | | 2.6 |
| 06 | | 5.4 | 255 | | --- | 1.50 | | 2.8 |
| 07 | | 6.6 | 245 | | 115 | 2.10 | | 2.9 |
| 08 | 310 | 7.7 | 240 | 4.25 | 110 | 2.60 | 2.7 | 2.9 |
| 09 | 310 | 8.9 | 240 | 4.80 | 110 | 2.95 | | 2.9 |
| 10 | 310 | 9.4 | 235 | 5.00 | 105 | 3.10 | | 2.9 |
| 11 | 300 | 10.3 | 230 | (5.20) | 105 | 3.20 | | 2.8 |
| 12 | 320 | 11.0 | 230 | (5.60) | 105 | 3.25 | | 2.8 |
| 13 | 305 | 10.9 | 225 | 5.35 | 105 | 3.25 | | 2.8 |
| 14 | 290 | 11.0 | 230 | (5.05) | 110 | 3.15 | | 2.8 |
| 15 | 330 | 10.8 | 240 | --- | 110 | 3.00 | | 2.8 |
| 16 | --- | 10.9 | 240 | --- | 110 | 2.70 | | 2.9 |
| 17 | --- | 10.3 | 240 | --- | 120 | 2.15 | | 2.9 |
| 18 | | 9.4 | 240 | | --- | 1.50 | | 3.0 |
| 19 | | 8.0 | 240 | | --- | E | | 2.9 |
| 20 | | 6.6 | 245 | | | | | 2.7 |
| 21 | | 5.6 | 265 | | | | | 2.6 |
| 22 | | 4.9 | 320 | | | | | 2.5 |
| 23 | | 4.8 | 330 | | | | | 2.5 |

Time: 15.0°E.
Sweep: 1.4 Mc to 17.0 Mc in 6 minutes, automatic operation.

Table 5

Formosa, China (25.0°N, 121.5°E) March 1957

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 250 | (14.2) | | | | | | (2.85) |
| 01 | 250 | 12.8 | | | | | | 2.85 |
| 02 | 250 | 11.4 | | | | | | 2.8 |
| 03 | 250 | 9.4 | | | | | | 2.9 |
| 04 | 250 | 8.8 | | | | | | 2.8 |
| 05 | 260 | 6.8 | | | | | 2.2 | 2.8 |
| 06 | 260 | 7.9 | | | | | 2.5 | 2.8 |
| 07 | 240 | 11.1 | | | --- | --- | 2.7 | 2.9 |
| 08 | 240 | 12.6 | | | 120 | 3.1 | | 2.9 |
| 09 | 240 | 13.9 | --- | --- | 120 | 3.5 | 3.8 | 2.8 |
| 10 | (230) | 14.6 | 220 | --- | 110 | 3.7 | 4.0 | 2.7 |
| 11 | --- | 15.6 | 220 | --- | 110 | 3.9 | | 2.7 |
| 12 | --- | >16.4 | 220 | --- | 120 | 4.0 | 4.0 | 2.6 |
| 13 | --- | (17.1) | 230 | --- | 120 | 4.0 | | 2.6 |
| 14 | --- | (17.5) | 240 | --- | 120 | 3.7 | | 2.6 |
| 15 | --- | (17.7) | 240 | --- | 120 | 3.5 | 3.8 | 2.65 |
| 16 | --- | 17.2 | 240 | --- | 120 | 3.3 | 3.8 | 2.7 |
| 17 | 250 | 16.? | 240 | --- | 120 | 2.9 | 3.4 | 2.8 |
| 18 | 280 | (16.6) | | | | | (3.0) | (2.8) |
| 19 | 300 | 16.6 | | | | | (3.1) | 2.7 |
| 20 | 280 | 17.8 | | | | | | (2.7) |
| 21 | 280 | >17.1 | | | | | | (2.8) |
| 22 | 260 | >17.0 | | | | | | (2.9) |
| 23 | 250 | >15.4 | | | | | | (2.8) |

Time: 120.0°E.
Sweep: 1.1 Mc to 19.5 Mc in 15 minutes, manual operation.

Table 6

Thule, Greenland (76.6°N, 68.7°W) February 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 5.4 | 255 | | | | | 2.80 |
| 01 | | 5.1 | 260 | | | | | 2.75 |
| 02 | | 5.2 | 270 | | | | | 2.80 |
| 03 | | 5.2 | 260 | | | | | 2.80 |
| 04 | | 4.6 | 250 | | | | | 2.90 |
| 05 | | 4.8 | 250 | | | | | 2.80 |
| 06 | | 5.0 | 250 | | | | | 2.80 |
| 07 | | 4.9 | 260 | | | | | 2.90 |
| 08 | | 5.7 | 250 | | | | | 2.90 |
| 09 | | 6.1 | 250 | | | | | 3.00 |
| 10 | | 6.7 | 250 | | | | | 2.95 |
| 11 | | 7.0 | 260 | | --- | --- | | 2.95 |
| 12 | | 7.8 | 250 | | --- | --- | | 2.95 |
| 13 | | 8.0 | 250 | | --- | --- | | 2.95 |
| 14 | | 8.0 | 240 | | --- | --- | | 2.95 |
| 15 | | 7.6 | 250 | | | | | 2.85 |
| 16 | | 7.0 | 250 | | | | | 2.80 |
| 17 | | 7.0 | 250 | | | | | 2.80 |
| 18 | | 6.6 | 245 | | | | | 2.85 |
| 19 | | 6.8 | 250 | | | | | 2.80 |
| 20 | | 6.4 | 255 | | | | | 2.75 |
| 21 | | 6.6 | 250 | | | | | 2.85 |
| 22 | | 6.0 | 250 | | | | | 2.80 |
| 23 | | 5.6 | 265 | | | | | 2.80 |

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 7

Fairbanks, Alaska (64.9°N, 147.8°W) February 1957

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | (4.1) | | | | | 3.8 | (2.90) |
| 01 | | (4.3) | | | | | 4.1 | (2.80) |
| 02 | | (4.1) | | | | | 3.4 | 2.60 |
| 03 | | (4.4) | | | | | 3.0 | 2.60 |
| 04 | | (4.6) | | | | | 3.2 | (2.70) |
| 05 | | (4.8) | | | | | 3.8 | (2.65) |
| 06 | | (5.0) | | | | | 3.4 | (2.00) |
| 07 | | (5.2) | | | | | | (2.95) |
| 08 | | (5.9) | | | --- | ---- | | (3.20) |
| 09 | | 6.7 | | | 119 | ---- | | 3.20 |
| 10 | | 8.3 | | | 119 | 2.30 | | 3.20 |
| 11 | | 9.6 | | | 123 | 2.65 | | 3.10 |
| 12 | | 10.0 | | | 121 | 2.60 | | 3.05 |
| 13 | | 10.3 | | | 121 | 2.50 | | 3.00 |
| 14 | | 10.5 | | | 123 | 2.50 | | 3.00 |
| 15 | | 10.9 | | | 126 | 2.25 | | 3.00 |
| 16 | | 10.6 | | | 131 | 1.90 | | 3.00 |
| 17 | | 10.0 | | | --- | ---- | | 3.10 |
| 18 | | 8.0 | | | | | | 3.05 |
| 19 | | 6.1 | | | | | | 3.10 |
| 20 | | 5.1 | | | | | | 3.05 |
| 21 | | 4.4 | | | | | | 3.10 |
| 22 | | 3.6 | | | | | 2.4 | 3.10 |
| 23 | | (3.4) | | | | | 3.3 | (3.00) |

Time: 150.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 8

Narsarssuak, Greenland (61.2°N, 45.4°W) February 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | --- | 330 | | | | (3.6) | ---- |
| 01 | | --- | 355 | | | | 3.0 | |
| 02 | | --- | 350 | | | | 2.6 | |
| 03 | | --- | 355 | | | | 3.2 | ---- |
| 04 | | --- | <340 | | | | 3.0 | ---- |
| 05 | | --- | 310 | | | | 3.7 | ---- |
| 06 | | (4.8) | 310 | | | | | ---- |
| 07 | | (5.0) | 290 | | | | | (3.00) |
| 08 | | (6.6) | 265 | | --- | ---- | | (3.15) |
| 09 | | 8.4 | 240 | | --- | ---- | | 3.10 |
| 10 | --- | 9.4 | 250 | --- | --- | ---- | | 3.10 |
| 11 | --- | 10.3 | <250 | --- | --- | ---- | | 3.05 |
| 12 | (305) | (11.1) | 240 | --- | --- | ---- | | 3.00 |
| 13 | (280) | 11.0 | 245 | --- | --- | ---- | | 2.95 |
| 14 | --- | 10.9 | 245 | --- | 122 | 2.65 | | 3.00 |
| 15 | --- | 10.2 | 250 | --- | 127 | 2.40 | | 3.05 |
| 16 | | (10.0) | 260 | | --- | ---- | | (3.00) |
| 17 | | (7.7) | 280 | | | | 2.4 | (3.00) |
| 18 | | (5.0) | 290 | | | | 2.5 | ---- |
| 19 | | (5.5) | 310 | | | | 2.9 | ---- |
| 20 | | (5.6) | 340 | | | | 3.2 | ---- |
| 21 | | --- | <330 | | | | 3.7 | ---- |
| 22 | | --- | 330 | | | | 3.7 | |
| 23 | | --- | 330 | | | | (4.4) | ---- |

Time: 45.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 9

San Francisco, California (37.4°N, 122.2°W) February 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 4.1 | 260 | | | | (2.8) | 2.70 |
| 01 | | 4.0 | <275 | | | | (2.3) | 2.75 |
| 02 | | 4.1 | <300 | | | | (1.9) | 2.70 |
| 03 | | 4.1 | 290 | | | | (2.1) | 2.65 |
| 04 | | 4.1 | 280 | | | | (2.3) | 2.70 |
| 05 | | 4.0 | 280 | | | | (2.3) | 2.70 |
| 06 | | (4.0) | 270 | | | | (2.2) | 2.75 |
| 07 | | (6.2) | 250 | | | | 2.2 | 3.00 |
| 08 | | 9.1 | 230 | | 113 | 2.60 | | 3.25 |
| 09 | | 11.0 | 230 | | 115 | 3.00 | | 3.20 |
| 10 | | (12.0) | 225 | | 115 | 3.40 | | (3.05) |
| 11 | | (12.5) | <220 | | 115 | 3.55 | | (3.00) |
| 12 | --- | (12.7) | 215 | | 115 | 3.60 | | (2.95) |
| 13 | --- | >12.5 | 220 | | 115 | 3.70 | | ---- |
| 14 | --- | (12.4) | 225 | | 115 | 3.60 | | (2.85) |
| 15 | | (12.3) | 230 | | 115 | 3.35 | | 2.90 |
| 16 | | 11.9 | 230 | | 115 | 3.00 | 3.1 | 2.90 |
| 17 | | 11.5 | 230 | | 115 | (2.20) | 2.7 | 2.95 |
| 18 | | 10.5 | 225 | | | | (2.8) | 3.00 |
| 19 | | 9.0 | 220 | | | | (2.3) | 3.00 |
| 20 | | 7.0 | 225 | | | | (3.2) | 3.10 |
| 21 | | 5.8 | 230 | | | | (2.9) | 3.10 |
| 22 | | 4.7 | 245 | | | | (2.3) | 2.95 |
| 23 | | 4.2 | 260 | | | | (2.3) | 2.80 |

Time: 120.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 10

White Sands, New Mexico (32.3°N, 106.5°W) February 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 4.8 | 250 | | | | (2.0) | 2.80 |
| 01 | | 4.8 | <260 | | | | | 2.75 |
| 02 | | 4.7 | 250 | | | | (1.8) | 2.70 |
| 03 | | 4.5 | 240 | | | | | 2.75 |
| 04 | | 4.4 | <255 | | | | | 2.65 |
| 05 | | 4.5 | <270 | | | | | 2.65 |
| 06 | | 4.5 | 250 | | | | (1.7) | 2.80 |
| 07 | | 6.9 | 240 | | --- | 1.90 | 2.0 | 3.10 |
| 08 | | 9.8 | 235 | | 111 | 2.75 | | 3.20 |
| 09 | | 11.5 | 230 | | 109 | 3.20 | | 3.10 |
| 10 | | 12.7 | 220 | | 109 | 3.55 | | 3.00 |
| 11 | --- | 13.0 | 215 | | 109 | (3.75) | | 2.90 |
| 12 | --- | 13.2 | 215 | | 107 | 3.85 | | 2.85 |
| 13 | --- | 13.1 | 220 | | 109 | 3.80 | | 2.80 |
| 14 | --- | 12.8 | 225 | | 109 | 3.70 | | 2.80 |
| 15 | | 12.8 | 225 | | 109 | 3.50 | 3.7 | 2.80 |
| 16 | | 12.4 | 235 | | 109 | 3.10 | 3.4 | 2.80 |
| 17 | | 12.0 | 235 | | 111 | 2.45 | 3.0 | 2.95 |
| 18 | | 10.6 | 220 | | | | 2.8 | 2.95 |
| 19 | | 9.0 | 215 | | | | 2.4 | 2.95 |
| 20 | | 7.5 | <225 | | | | (2.5) | 2.95 |
| 21 | | 6.1 | 230 | | | | (2.5) | 2.95 |
| 22 | | 5.4 | 235 | | | | (2.5) | 2.90 |
| 23 | | 4.9 | <260 | | | | (2.0) | 2.80 |

Time: 105.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 11

Okinawa I. (26.3°N, 127.8°E) February 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | (10.8) | 235 | | | | (2.2) | (2.95) |
| 01 | | 9.5 | 230 | | | | (2.1) | 3.00 |
| 02 | | 8.2 | 220 | | | | | 3.00 |
| 03 | | 6.4 | 230 | | | | | 3.00 |
| 04 | | 4.9 | 235 | | | | 1.6 | 2.80 |
| 05 | | 4.4 | 250 | | | | | 2.70 |
| 06 | | 4.1 | (275) | | | | | 2.75 |
| 07 | | 6.0 | 270 | | | | (2.0) | 2.95 |
| 08 | | 10.2 | 240 | | 119 | 2.60 | | 3.20 |
| 09 | | 12.7 | 235 | | 111 | 3.25 | 3.2 | 3.10 |
| 10 | | 14.4 | 230 | | 111 | 3.60 | 3.8 | 3.00 |
| 11 | | 15.4 | 225 | | 111 | (3.80) | 4.2 | 2.95 |
| 12 | --- | 15.9 | 225 | | 111 | 3.90 | 4.4 | 2.80 |
| 13 | (345) | 16.4 | <220 | | 113 | 3.95 | 4.5 | 2.75 |
| 14 | (340) | 15.8 | 230 | | 112 | 3.85 | 4.4 | 2.75 |
| 15 | (335) | 15.5 | 230 | | 111 | 3.75 | 4.2 | 2.75 |
| 16 | --- | 15.0 | 230 | | 111 | 3.40 | 4.3 | 2.75 |
| 17 | | 14.8 | 245 | | 113 | 2.85 | 3.8 | 2.80 |
| 18 | | 14.4 | 250 | | --- | ---- | 2.5 | 2.90 |
| 19 | | 14.5 | 250 | | | | (3.2) | 2.90 |
| 20 | | (15.2) | 250 | | | | (3.1) | (2.85) |
| 21 | | 15.2 | 240 | | | | (2.4) | 2.90 |
| 22 | | (14.2) | 230 | | | | (2.1) | (2.95) |
| 23 | | (12.5) | 230 | | | | (2.6) | (2.95) |

Time: 135.0°E.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 12

Adak, Alaska (51.9°N, 176.6°W) January 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 2.7 | 340 | | | | | 2.60 |
| 01 | | (2.8) | 330 | | | | | 2.55 |
| 02 | | 2.8 | 325 | | | | | 2.55 |
| 03 | | (2.9) | 315 | | | | | (2.65) |
| 04 | | 3.0 | 290 | | | | | 2.65 |
| 05 | | 2.7 | 290 | | | | | 2.60 |
| 06 | | (2.8) | <270 | | | | | (2.60) |
| 07 | | 3.9 | <260 | | --- | ---- | | 2.55 |
| 08 | | 7.2 | 230 | | --- | ---- | | 3.05 |
| 09 | | 10.0 | 230 | | 125 | (2.50) | | 3.15 |
| 10 | --- | 11.9 | 230 | --- | 121 | (2.80) | | 3.10 |
| 11 | --- | 12.4 | 230 | | 119 | 3.00 | 3.3 | 3.10 |
| 12 | --- | 12.4 | 225 | | 119 | (3.00) | | 3.00 |
| 13 | --- | 12.5 | 230 | | 117 | 3.00 | 3.0 | 2.90 |
| 14 | --- | 12.0 | 230 | | 119 | (2.70) | 2.8 | 3.00 |
| 15 | --- | 10.9 | 220 | | 121 | (2.40) | 2.4 | 3.00 |
| 16 | --- | 9.4 | 220 | | 129 | ---- | | 3.00 |
| 17 | | 8.5 | 220 | | | | | 3.00 |
| 18 | | 7.1 | 220 | | | | | 3.05 |
| 19 | | 4.5 | 220 | | | | | 3.10 |
| 20 | | 2.8 | 240 | | | | | 3.05 |
| 21 | | 2.7 | <280 | | | | | 2.80 |
| 22 | | (2.6) | <300 | | | | | (2.65) |
| 23 | | 2.8 | 330 | | | | | 2.55 |

Time: 180.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 27 seconds.

Table 13

Panama Canal Zone (9.4°N, 79.9°W) January 1957

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 9.1 | 220 | | | | (3.0) | 3.05 |
| 01 | | 7.4 | 215 | | | | | 3.05 |
| 02 | | 5.6 | 220 | | | | (2.5) | 2.95 |
| 03 | | 4.7 | 235 | | | | (2.9) | 2.85 |
| 04 | | 3.7 | 260 | | | | (3.7) | 2.70 |
| 05 | | 3.6 | 280 | | | | (3.8) | 2.65 |
| 06 | | 4.6 | 290 | | | | (4.0) | 2.60 |
| 07 | | 9.0 | 260 | | 144 | 2.30 | (2.4) | 3.00 |
| 08 | --- | 12.2 | 245 | | 111 | 3.10 | 3.1 | 3.00 |
| 09 | 260 | 13.4 | 235 | | 107 | 3.60 | (4.4) | 2.90 |
| 10 | (290) | 13.6 | 225 | | 107 | 3.95 | 4.4 | 2.80 |
| 11 | (325) | 13.2 | 220 | | 105 | 4.10 | 4.5 | 2.65 |
| 12 | 395 | 13.0 | 220 | --- | 106 | 4.15 | 4.8 | 2.60 |
| 13 | 410 | 12.8 | 220 | 6.9 | 107 | 4.15 | 4.9 | 2.50 |
| 14 | 410 | 12.6 | 220 | 6.6 | 107 | 4.05 | (4.8) | 2.50 |
| 15 | 400 | 12.4 | 235 | --- | 110 | 3.90 | (5.1) | 2.50 |
| 16 | (380) | 11.8 | 240 | | 111 | 3.60 | (4.4) | 2.50 |
| 17 | | 11.2 | 250 | | 115 | 3.00 | (4.2) | 2.50 |
| 18 | | 11.0 | 260 | | --- | ---- | (4.0) | 2.60 |
| 19 | | 10.5 | 260 | | | | (3.3) | 2.70 |
| 20 | | 10.0 | 240 | | | | (2.8) | 2.70 |
| 21 | | 9.6 | 250 | | | | (2.8) | 2.70 |
| 22 | | 10.2 | 250 | | | | (3.2) | 2.85 |
| 23 | | 9.8 | 230 | | | | (3.0) | 2.95 |

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 14

Thule, Greenland (76.6°N, 68.7°W) December 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | (5.6) | | | | | | (2.70) |
| 01 | | (5.0) | | | | | | (2.70) |
| 02 | | (5.1) | | | | | | 2.70 |
| 03 | | (4.5) | | | | | | 2.60 |
| 04 | | (4.6) | | | | | | (2.70) |
| 05 | | (5.1) | | | | | | (2.65) |
| 06 | | (4.8) | | | | | | (2.70) |
| 07 | | (4.8) | | | | | | (2.75) |
| 08 | | (5.1) | | | | | | (2.75) |
| 09 | | (5.4) | | | | | | (2.80) |
| 10 | | 5.6 | | | | | | 2.80 |
| 11 | | (5.8) | | | | | | (2.75) |
| 12 | | 7.0 | | | | | | 2.80 |
| 13 | | 7.0 | | | | | | 2.80 |
| 14 | | 7.0 | | | | | | 2.80 |
| 15 | | 6.8 | | | | | | 2.70 |
| 16 | | (7.1) | | | | | | 2.65 |
| 17 | | (6.8) | | | | | | (2.70) |
| 18 | | (6.8) | | | | | | (2.70) |
| 19 | | (6.1) | | | | | | (2.70) |
| 20 | | (6.2) | | | | | | 2.65 |
| 21 | | 6.2 | | | | | | (2.65) |
| 22 | | (5.8) | | | | | | (2.70) |
| 23 | | (5.6) | | | | | | (2.60) |

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 15

Tromso, Norway (69.7°N, 19.0°E) December 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | --- | (5.45) | | | | | 3.7 | ---- |
| 01 | --- | (5.30) | | | | | 3.2 | ---- |
| 02 | (295) | (5.80) | | | | | 3.2 | (2.50) |
| 03 | (300) | (5.60) | | | | | 4.0 | (2.45) |
| 04 | 285 | (5.65) | | | | | 3.2 | (2.60) |
| 05 | 270 | 5.70 | | | | | 3.0 | 2.65 |
| 06 | 265 | 5.50 | | | | | 2.7 | 2.70 |
| 07 | 270 | 4.80 | | | | | 2.7 | 2.55 |
| 08 | 280 | 4.95 | | | | | 1.8 | 2.55 |
| 09 | 255 | 6.00 | | | | | | 2.70 |
| 10 | 250 | 8.55 | | | --- | 1.30 | | 2.75 |
| 11 | 250 | 10.60 | | | --- | ---- | 1.8 | 2.90 |
| 12 | 245 | 11.40 | | | 105 | 1.40 | | 2.90 |
| 13 | 245 | 11.55 | | | --- | 1.35 | 1.4 | 2.90 |
| 14 | 240 | 10.30 | | | | | 1.1 | 2.90 |
| 15 | 245 | 8.85 | | | | | 1.7 | 2.90 |
| 16 | 245 | 5.30 | | | | | 2.6 | 2.80 |
| 17 | 250 | (5.50) | | | | | 2.5 | (2.75) |
| 18 | 250 | 4.65 | | | | | 3.0 | (2.90) |
| 19 | (260) | 4.15 | | | | | 3.2 | (2.70) |
| 20 | --- | (3.70) | | | | | 3.3 | ---- |
| 21 | --- | ---- | | | | | 3.3 | ---- |
| 22 | --- | ---- | | | | | 3.2 | |
| 23 | --- | ---- | | | | | 3.2 | ---- |

Time: 15.0°E.
Sweep: 0.7 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 16

Lulea, Sweden (65.6°N, 22.1°E) December 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | (325) | --- | | | | | 2.6 | |
| 01 | 325 | --- | | | | | 2.4 | |
| 02 | 300 | --- | | | | | 2.6 | |
| 03 | 300 | --- | | | | | 2.4 | |
| 04 | 290 | --- | | | | | | |
| 05 | 255 | --- | | | | | | |
| 06 | 250 | (2.5) | | | | | | |
| 07 | 250 | (2.2) | | | | | | |
| 08 | 255 | --- | | | | | | |
| 09 | 240 | --- | | | --- | 1.5 | | |
| 10 | 230 | >7.5 | | | --- | 1.8 | | |
| 11 | 240 | >7.9 | | | --- | 2.0 | | |
| 12 | 225 | >8.0 | | | 140 | 2.0 | | |
| 13 | 225 | >8.0 | | | --- | 1.8 | | |
| 14 | 225 | >7.8 | | | --- | 1.6 | | |
| 15 | 210 | --- | | | | | | |
| 16 | 225 | --- | | | | | | |
| 17 | 220 | --- | | | | | | |
| 18 | 235 | --- | | | | | | |
| 19 | 255 | (2.2) | | | | | | |
| 20 | 280 | --- | | | | | | |
| 21 | (270) | --- | | | | | | |
| 22 | (300) | --- | | | | | 2.4 | |
| 23 | (340) | --- | | | | | 2.0 | |

Time: 15.0°E.
Sweep: 1.5 Mc to 10.0 Mc in 6 minutes, automatic operation.

Table 17

De Bilt, Holland (52.1°N, 5.2°E) December 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 325 | 4.0 | | | | | | 2.4 |
| 01 | 320 | 3.9 | | | | | | 2.35 |
| 02 | 320 | 3.6 | | | | | | 2.25 |
| 03 | 300 | 3.5 | | | | | | 2.5 |
| 04 | <290 | 3.6 | | | | | | 2.6 |
| 05 | 270 | 3.5 | | | | | | 2.8 |
| 06 | <265 | 3.2 | | | | | | 2.7 |
| 07 | 240 | 4.8 | | | | | | 2.65 |
| 08 | 220 | 8.9 | | | 130 | 2.1 | | 3.0 |
| 09 | 220 | 12.0 | | | 120 | 2.5 | | 3.0 |
| 10 | 215 | 14.0 | --- | --- | 120 | 2.8 | 2.8 | 2.8 |
| 11 | 220 | 14.4 | --- | --- | 120 | 3.0 | | 3.0 |
| 12 | 220 | 14.3 | --- | --- | 115 | 3.1 | | 2.9 |
| 13 | 220 | 14.3 | --- | --- | 115 | 3.0 | | 2.8 |
| 14 | 220 | 14.2 | --- | --- | 120 | 2.7 | | 2.85 |
| 15 | 215 | 13.1 | --- | --- | 120 | 2.2 | | 3.0 |
| 16 | 210 | 11.8 | | | | | | 3.0 |
| 17 | 210 | 9.5 | | | | | | 3.0 |
| 18 | 220 | 8.0 | | | | | | 3.0 |
| 19 | 230 | 5.7 | | | | | | 2.9 |
| 20 | 260 | 4.8 | | | | | | 2.6 |
| 21 | 300 | 4.3 | | | | | | 2.45 |
| 22 | 320 | 4.2 | | | | | | 2.35 |
| 23 | <320 | 4.1 | | | | | | 2.5 |

Time: 0.0°.
Sweep: 1.4 Mc to 16.0 Mc in 40 seconds.

Table 18

Lindau/Harz, Germany (51.6°N, 10.1°E) December 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 310 | 4.05 | | | | | 3.0 | 2.55 |
| 01 | 300 | 4.00 | | | | | 3.0 | 2.55 |
| 02 | 300 | 3.80 | | | | | 2.7 | 2.55 |
| 03 | 300 | 3.70 | | | --- | E | 2.7 | 2.65 |
| 04 | 280 | 3.50 | | | --- | E | 2.8 | 2.70 |
| 05 | 270 | 3.60 | | | --- | E | 2.5 | 2.70 |
| 06 | 250 | 3.40 | | | --- | E | 2.5 | 2.75 |
| 07 | 250 | 3.50 | | | --- | E | 2.7 | 2.80 |
| 08 | 240 | 6.40 | | | --- | 1.45 | 3.2 | 2.80 |
| 09 | 230 | 10.30 | | | 125 | 2.20 | 3.8 | 3.10 |
| 10 | 220 | 12.70 | | | 115 | 2.60 | 3.8 | 3.00 |
| 11 | 225 | 14.10 | | | 115 | 2.90 | 4.0 | 3.00 |
| 12 | 230 | 14.40 | | | 115 | 3.00 | 4.4 | 2.95 |
| 13 | 225 | 14.10 | | | 115 | 2.90 | 4.0 | 2.95 |
| 14 | 235 | 14.20 | | | 115 | 2.75 | 3.9 | 2.90 |
| 15 | 225 | 13.60 | | | 120 | 2.40 | 4.0 | 2.90 |
| 16 | 220 | 12.70 | | | --- | 1.50 | 3.8 | 2.90 |
| 17 | 220 | 11.00 | | | --- | E | 3.4 | 2.90 |
| 18 | 220 | 8.90 | | | --- | E | 3.2 | 2.90 |
| 19 | 230 | 7.45 | | | --- | E | 3.2 | 2.95 |
| 20 | 230 | 5.35 | | | --- | E | 3.1 | 2.95 |
| 21 | 250 | 4.60 | | | | | 3.0 | 2.70 |
| 22 | 290 | 4.10 | | | | | 3.0 | 2.60 |
| 23 | 320 | 4.00 | | | | | 3.0 | 2.55 |

Time: 15.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 4 minutes.

Table 19

Schwarzenburg, Switzerland (46.8°N, 7.3°E) — December 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 300 | 4.6 | | | | | | 2.9 |
| 01 | 290 | 4.4 | | | | | | 2.9 |
| 02 | 300 | 4.4 | | | | | | 2.9 |
| 03 | 300 | 4.3 | | | | | | 2.9 |
| 04 | 280 | 4.0 | | | | | | 3.0 |
| 05 | 270 | 3.6 | | | | | | 3.0 |
| 06 | 270 | 3.5 | | | | | | 3.0 |
| 07 | 250 | 3.8 | | | | | | 3.1 |
| 08 | 210 | 7.0 | | | 150 | 1.9 | | 3.4 |
| 09 | 210 | 10.5 | | | 110 | 2.3 | | 3.5 |
| 10 | 210 | 13.0 | | | 100 | 2.7 | | 3.4 |
| 11 | 205 | 14.0 | | | 100 | 3.0 | | 3.4 |
| 12 | 210 | 14.2 | | | 100 | 3.1 | | 3.3 |
| 13 | 210 | 13.6 | | | 100 | 3.1 | | 3.2 |
| 14 | 210 | 13.4 | | | 100 | 3.0 | | 3.2 |
| 15 | 220 | 13.2 | | | 100 | 2.7 | | 3.2 |
| 16 | 220 | 12.3 | | | 100 | 2.2 | | (3.2) |
| 17 | 205 | 10.2 | | | | | | 3.3 |
| 18 | 200 | 9.0 | | | | | 2.6 | 3.3 |
| 19 | 210 | 8.0 | | | | | | 3.35 |
| 20 | 210 | 6.5 | | | | | | 3.3 |
| 21 | 230 | 5.0 | | | | | | 3.3 |
| 22 | 285 | 4.4 | | | | | | 3.0 |
| 23 | 300 | 4.3 | | | | | | 2.95 |

Time: 15.0°E.
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 20

Wakkanai, Japan (45.4°N, 141.7°E) — December 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 310 | 4.0 | | | | | | |
| 01 | 310 | 4.0 | | | | | | |
| 02 | 300 | 3.9 | | | | | | |
| 03 | 300 | 3.8 | | | | | | |
| 04 | 290 | 3.7 | | | | | | |
| 05 | 270 | 3.6 | | | | | | |
| 06 | 270 | 3.6 | | | | | | |
| 07 | 240 | 6.6 | | | | | | |
| 08 | 220 | 10.0 | | | | | | |
| 09 | 220 | 11.4 | | | | | | |
| 10 | 230 | 12.7 | | | | | | |
| 11 | 230 | 12.5 | | | | | | |
| 12 | 230 | 12.1 | | | | | | |
| 13 | 240 | 11.6 | | | | | | |
| 14 | 230 | 11.3 | | | | | | |
| 15 | 230 | 10.4 | | | | | | |
| 16 | 230 | 9.3 | | | | | | |
| 17 | 220 | 7.7 | | | | | | |
| 18 | 240 | 6.9 | | | | | | |
| 19 | 240 | 6.0 | | | | | | |
| 20 | 250 | 4.5 | | | | | | |
| 21 | 290 | 4.0 | | | | | | |
| 22 | 320 | 4.0 | | | | | | |
| 23 | 310 | 4.2 | | | | | | |

Time: 135.0°E.
Sweep: 1.0 Mc to 22.0 Mc in 1 minute.

Table 21

Akita, Japan (39.7°N, 140.1°E) — December 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 300 | 4.3 | | | | | 2.2 | |
| 01 | 300 | 4.2 | | | | | 2.2 | |
| 02 | 300 | 4.2 | | | | | 2.4 | |
| 03 | 300 | 4.0 | | | | | 2.4 | |
| 04 | 290 | 3.9 | | | | | 2.2 | |
| 05 | 300 | 3.8 | | | | | 2.2 | |
| 06 | 270 | 4.2 | | | | | | |
| 07 | 250 | 7.6 | | | | | 2.7 | |
| 08 | 240 | 10.4 | | | | | | |
| 09 | 240 | 11.8 | | | | | | |
| 10 | 240 | 12.3 | | | | | | |
| 11 | 240 | 12.5 | | | | | | |
| 12 | 240 | 12.0 | | | | | | |
| 13 | 240 | 11.8 | | | | | | |
| 14 | 240 | 11.5 | | | | | | |
| 15 | 240 | 11.2 | | | | | 3.5 | |
| 16 | 240 | 9.0 | | | | | | |
| 17 | 240 | 8.7 | | | | | | |
| 18 | 240 | 7.6 | | | | | | |
| 19 | 240 | 6.6 | | | | | 2.2 | |
| 20 | 240 | 5.4 | | | | | 2.4 | |
| 21 | 260 | 4.5 | | | | | | |
| 22 | 300 | 4.3 | | | | | 2.0 | |
| 23 | 310 | 4.4 | | | | | 2.2 | |

Time: 135.0°E.
Sweep: 0.05 Mc to 22.0 Mc in 2 minutes.

Table 22

Tokyo, Japan (35.7°N, 139.5°E) — December 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 300 | 4.7 | | | | | | 2.6 |
| 01 | 300 | 4.4 | | | | | | 2.6 |
| 02 | 300 | 4.2 | | | | | | 2.6 |
| 03 | 290 | 4.1 | | | | | 2.1 | 2.6 |
| 04 | 280 | 3.8 | | | | | 1.9 | 2.6 |
| 05 | 310 | 3.7 | | | | | | 2.5 |
| 06 | 280 | 4.2 | | | | | | 2.7 |
| 07 | 250 | 8.5 | | | 160 | 2.1 | | 3.0 |
| 08 | 240 | 11.1 | --- | --- | 120 | 2.8 | 3.2 | 3.1 |
| 09 | 240 | 12.8 | --- | --- | 120 | 3.2 | | 3.0 |
| 10 | 240 | 13.3 | --- | --- | 120 | 3.5 | | 2.9 |
| 11 | 240 | 12.6 | --- | --- | 120 | 3.6 | | 2.7 |
| 12 | 250 | 12.8 | 240 | --- | 120 | 3.6 | | 2.7 |
| 13 | 250 | 12.7 | 240 | --- | 110 | 3.5 | | 2.6 |
| 14 | 250 | 12.5 | 250 | --- | 110 | 3.3 | | 2.6 |
| 15 | 250 | 11.8 | --- | --- | 120 | 2.9 | 3.2 | 2.7 |
| 16 | 250 | 10.7 | --- | --- | 140 | 2.2 | | 2.8 |
| 17 | 240 | 9.6 | | | --- | --- | | 2.8 |
| 18 | 250 | 8.5 | | | | | | 2.8 |
| 19 | 250 | 7.4 | | | | | | 2.8 |
| 20 | 250 | 6.5 | | | | | | 2.8 |
| 21 | 260 | 5.6 | | | | | | 2.7 |
| 22 | 280 | 5.1 | | | | | | 2.6 |
| 23 | 310 | 4.8 | | | | | | 2.6 |

Time: 135.0°E.
Sweep: 1.0 Mc to 17.2 Mc in 2 minutes.

Table 23

Yamagawa, Japan (31.2°N, 130.6°E) — December 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 270 | 6.0 | | | | | 2.3 | |
| 01 | 270 | 5.9 | | | | | 2.3 | |
| 02 | 260 | 5.3 | | | | | 2.3 | |
| 03 | 260 | 4.8 | | | | | 2.4 | |
| 04 | 250 | 4.6 | | | | | 2.4 | |
| 05 | 260 | 3.9 | | | | | 2.3 | |
| 06 | 300 | 3.9 | | | | | 2.3 | |
| 07 | 270 | 6.8 | | | | | 2.4 | |
| 08 | 240 | 11.3 | | | | | | |
| 09 | 240 | 13.4 | | | | | | |
| 10 | 240 | 13.6 | | | | | | |
| 11 | 240 | 13.2 | | | | | | |
| 12 | 240 | 13.6 | | | | | | |
| 13 | 240 | 13.6 | | | | | | |
| 14 | 240 | 13.6 | | | | | | |
| 15 | 250 | 13.6 | | | | | | |
| 16 | 240 | 13.3 | | | | | | |
| 17 | 240 | 12.6 | | | | | 3.1 | |
| 18 | 220 | 10.9 | | | | | 2.4 | |
| 19 | 240 | 9.8 | | | | | 2.4 | |
| 20 | 240 | 9.3 | | | | | 2.4 | |
| 21 | 240 | 9.0 | | | | | 2.3 | |
| 22 | 240 | 7.5 | | | | | 2.3 | |
| 23 | 250 | 6.3 | | | | | 2.3 | |

Time: 135.0°E.
Sweep: 1.0 Mc to 22.0 Mc in 1 minute.

Table 24

Huancayo, Peru (12.0°S, 75.3°W) — December 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 440 | (7.9) | | | | | (4.2) | (2.20) |
| 01 | 430 | (7.6) | | | | | 4.5 | (2.35) |
| 02 | 400 | (8.0) | | | | | 4.5 | (2.40) |
| 03 | 320 | (8.3) | | | | | 5.6 | (2.65) |
| 04 | 250 | 7.8 | | | | | 4.4 | 2.90 |
| 05 | 240 | 7.0 | | | | | 4.5 | 3.00 |
| 06 | 280 | 9.3 | | | 129 | 2.2 | 3.2 | 2.80 |
| 07 | 250 | 11.6 | --- | --- | 115 | 3.1 | 6.4 | 2.70 |
| 08 | 240 | 13.1 | 235 | --- | 113 | 3.6 | 8.4 | 2.60 |
| 09 | --- | 13.6 | 230 | --- | --- | --- | 11.0 | 2.45 |
| 10 | --- | 13.8 | 225 | --- | --- | --- | 12.0 | 2.30 |
| 11 | --- | 13.8 | 220 | --- | --- | --- | 12.3 | 2.15 |
| 12 | --- | 13.6 | 215 | --- | --- | --- | 12.3 | 2.10 |
| 13 | --- | 13.6 | 215 | --- | --- | --- | 12.2 | 2.05 |
| 14 | --- | 13.1 | 220 | --- | --- | --- | 11.6 | 2.05 |
| 15 | --- | 12.9 | 220 | --- | --- | --- | 11.2 | 2.05 |
| 16 | (250) | 12.6 | 235 | --- | --- | --- | 9.4 | 2.05 |
| 17 | 260 | 12.0 | 260 | --- | --- | --- | 0.8 | 2.05 |
| 18 | 300 | (11.6) | | | --- | --- | 5.6 | (2.10) |
| 19 | 350 | 10.5 | | | | | | 2.10 |
| 20 | 400 | 9.9 | | | | | | 2.05 |
| 21 | 410 | 9.2 | | | | | | 2.00 |
| 22 | 420 | 9.2 | | | | | | 2.10 |
| 23 | 440 | 8.6 | | | | | (4.7) | 2.20 |

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 25

Johannesburg, Union of S. Africa (26.2°S, 28.1°E) December 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | <300 | 6.8 | | | | | 2.7 | 2.6 |
| 01 | 200 | 6.6 | | | | | 2.5 | 2.6 |
| 02 | 200 | 6.0 | | | | | 3.1 | 2.6 |
| 03 | 200 | 5.8 | | | | | 2.9 | 2.6 |
| 04 | 290 | 5.2 | | | | | 2.2 | 2.5 |
| 05 | 300 | 5.7 | | | --- | --- | | 2.6 |
| 06 | 260 | 7.6 | 250 | --- | 120 | 2.6 | 3.1 | 2.8 |
| 07 | 200 | 9.0 | 240 | --- | 110 | 3.2 | 3.8 | 2.7 |
| 08 | 350 | 10.0 | 230 | 6.2 | 110 | 3.0 | 4.3 | 2.5 |
| 09 | 380 | 10.4 | 220 | 6.2 | 110 | 4.1 | 4.1 | 2.5 |
| 10 | 410 | 10.7 | 220 | 6.6 | 110 | --- | 4.6 | 2.4 |
| 11 | 440 | 10.8 | 220 | 6.6 | 110 | --- | 4.8 | 2.4 |
| 12 | 440 | 10.9 | 220 | 6.6 | 110 | --- | 4.7 | 2.4 |
| 13 | 440 | 10.0 | 220 | 6.5 | 110 | --- | 4.7 | 2.4 |
| 14 | 440 | 10.8 | 230 | 6.2 | 110 | --- | 4.7 | 2.4 |
| 15 | 430 | 10.6 | 230 | 6.0 | 110 | 4.0 | | 2.4 |
| 16 | 410 | 10.2 | 240 | 5.0 | 110 | 3.8 | 4.2 | 2.4 |
| 17 | 370 | 10.0 | 250 | 5.2 | 110 | 3.3 | 4.0 | 2.5 |
| 18 | (320) | 9.6 | 260 | --- | 110 | 2.6 | 3.2 | 2.6 |
| 19 | 200 | 9.4 | | | --- | --- | 2.6 | 2.6 |
| 20 | 270 | 9.0 | | | | | 2.5 | 2.6 |
| 21 | 270 | 0.5 | | | | | 2.3 | 2.6 |
| 22 | <290 | 8.0 | | | | | 2.5 | 2.6 |
| 23 | 290 | 7.4 | | | | | 2.6 | 2.6 |

Time: 30.0°E.
Sweep: 1.0 Mc to 15.0 Mc in 7 seconds.

Table 26

Capetown, Union of S. Africa (34.2°S, 10.3°E) December 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | (300) | 6.0 | | | | | 2.0 | 2.5 |
| 01 | <310 | 5.9 | | | | | 2.9 | 2.5 |
| 02 | 300 | 5.6 | | | | | 2.6 | 2.5 |
| 03 | <290 | 5.2 | | | | | 2.9 | 2.5 |
| 04 | <310 | 4.0 | | | | | 2.4 | 2.4 |
| 05 | 320 | 5.0 | | | | | | 2.5 |
| 06 | 200 | 6.8 | --- | --- | 120 | 2.2 | 2.9 | 2.6 |
| 07 | (350) | 0.2 | 250 | --- | 120 | 3.0 | | 2.6 |
| 08 | 370 | 9.3 | 250 | 5.8 | 110 | 3.5 | | 2.5 |
| 09 | 400 | 10.1 | 240 | 6.0 | 110 | 3.0 | | 2.4 |
| 10 | 440 | 10.5 | 240 | 6.4 | 110 | --- | 4.6 | 2.4 |
| 11 | 450 | 10.7 | --- | 6.4 | 110 | --- | 4.7 | 2.4 |
| 12 | 450 | 10.8 | --- | 6.2 | 110 | --- | 5.0 | 2.3 |
| 13 | 460 | 10.7 | --- | 6.2 | 110 | --- | 5.1 | 2.3 |
| 14 | 450 | 10.4 | --- | 6.1 | 110 | --- | 4.9 | 2.3 |
| 15 | 450 | 10.2 | 240 | 6.0 | 110 | --- | 4.6 | 2.4 |
| 16 | 450 | 9.8 | 240 | 5.9 | 110 | --- | 4.1 | 2.4 |
| 17 | 410 | 9.6 | 250 | 5.7 | 110 | 3.6 | 4.0 | 2.4 |
| 18 | 370 | 9.0 | 250 | 5.1 | 110 | 3.2 | 3.6 | 2.5 |
| 19 | 320 | 0.9 | 270 | --- | 110 | 2.6 | 3.4 | 2.6 |
| 20 | 280 | 0.5 | | | | | 2.8 | 2.6 |
| 21 | 270 | 7.8 | | | | | 2.0 | 2.6 |
| 22 | 280 | 7.0 | | | | | 2.8 | 2.5 |
| 23 | <290 | 6.7 | | | | | 2.8 | 2.5 |

Time: 30.0°E.
Sweep: 1.0 Mc to 15.0 Mc in 7 seconds.

Table 27

Resolute Bay, Canada (74.7°N, 94.9°W) November 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 5.7 | | | --- | --- | | ---- |
| 01 | | 5.6 | | | --- | --- | | (2.55) |
| 02 | | 5.2 | | | --- | --- | | ---- |
| 03 | | 5.3 | | | --- | 1.7 | | (2.6) |
| 04 | | 5.0 | | | --- | 1.4 | | ---- |
| 05 | | 4.8 | | | --- | --- | <1.5 | ---- |
| 06 | | 4.8 | | | --- | --- | <1.4 | ---- |
| 07 | | 4.8 | | | --- | --- | <1.6 | ---- |
| 08 | | 5.0 | | | --- | 1.5 | | (2.8) |
| 09 | | 5.6 | | | 140 | 1.5 | 1.5 | (2.8) |
| 10 | | 6.0 | | | 130 | 1.7 | 1.7 | (2.65) |
| 11 | | 6.8 | | | 120 | 1.8 | 1.8 | (2.75) |
| 12 | | 7.0 | | | 120 | 1.8 | 1.8 | (2.8) |
| 13 | | 8.0 | | | 120 | 1.8 | 1.8 | (2.6) |
| 14 | | 7.0 | | | 120 | 1.7 | 1.7 | (2.6) |
| 15 | | 6.8 | | | 115 | 1.6 | 1.6 | (2.65) |
| 16 | | 6.2 | | | 110 | 1.6 | | ---- |
| 17 | | 6.0 | | | --- | --- | <1.2 | (2.7) |
| 18 | | 6.6 | | | --- | --- | <1.2 | (2.6) |
| 19 | | 6.0 | | | --- | --- | <1.2 | ---- |
| 20 | | 6.4 | | | --- | --- | <1.2 | (2.8) |
| 21 | | 5.9 | | | --- | --- | | ---- |
| 22 | | 5.2 | | | --- | --- | <1.3 | ---- |
| 23 | | 5.2 | | | --- | --- | | ---- |

Time: 90.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 28

Kiruna, Sweden (67.8°N, 20.3°E) November 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 365 | 6.1 | | | | | 5.0 | 2.55 |
| 01 | 365 | (6.8) | | | | | 5.0 | (2.6) |
| 02 | 335 | (6.0) | | | | | 4.4 | (2.45) |
| 03 | 310 | 6.0 | | | | | 4.5 | 2.6 |
| 04 | 295 | 6.0 | | | | | 3.5 | 2.7 |
| 05 | 290 | 5.3 | | | | | 3.0 | 2.8 |
| 06 | 260 | 5.0 | | | | | 3.0 | 2.75 |
| 07 | 275 | 5.2 | | | --- | E | 3.1 | 2.7 |
| 08 | 260 | 6.0 | | | --- | 1.4 | 2.8 | 2.8 |
| 09 | 250 | 7.6 | | | 110 | 2.0 | <3.0 | 2.8 |
| 10 | 245 | 10.0 | | | --- | 2.2 | 3.2 | 2.9 |
| 11 | 245 | 11.7 | --- | --- | --- | 2.4 | <3.2 | 2.95 |
| 12 | 240 | 12.3 | | | --- | 2.4 | <4.0 | 3.0 |
| 13 | 235 | 12.0 | | | --- | 2.3 | 4.0 | 2.9 |
| 14 | 235 | 11.0 | | | --- | 2.0 | 3.2 | 3.0 |
| 15 | 230 | 9.4 | | | --- | E | 3.0 | 3.0 |
| 16 | 245 | 7.3 | | | --- | E | <3.0 | 3.0 |
| 17 | 275 | 6.0 | | | | | 3.3 | 2.8 |
| 18 | 260 | 5.7 | | | | | 3.3 | 2.8 |
| 19 | 320 | 5.3 | | | | | 3.6 | 2.8 |
| 20 | 330 | 4.9 | | | | | 4.3 | 2.7 |
| 21 | 340 | (6.0) | | | | | 4.2 | 2.55 |
| 22 | 365 | (6.0) | | | | | 4.5 | --- |
| 23 | 365 | (6.0) | | | | | 5.0 | --- |

Time: 15.0°E.
Sweep: 0.8 Mc to 14.0 Mc in 30 seconds.

Table 29

Lulea, Sweden (65.6°N, 22.1°E) November 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | (330) | --- | | | | | 3.0 | |
| 01 | (340) | --- | | | | | 3.0 | |
| 02 | 310 | --- | | | | | 2.9 | |
| 03 | 300 | --- | | | | | 1.7 | |
| 04 | 290 | --- | | | | | | |
| 05 | 260 | --- | | | | | | |
| 06 | 260 | --- | | | | | | |
| 07 | 250 | --- | | | | | | |
| 08 | 250 | --- | | | --- | 1.8 | | |
| 09 | 240 | >7.4 | | | --- | 2.2 | | |
| 10 | 230 | >7.5 | | | --- | 2.4 | | |
| 11 | 240 | >7.7 | | | --- | 2.5 | | |
| 12 | 235 | >8.0 | | | --- | 2.5 | | |
| 13 | 22S | >7.9 | | | --- | 2.5 | | |
| 14 | 225 | >7.6 | | | --- | 2.1 | | |
| 15 | 225 | --- | | | --- | 1.7 | | |
| 16 | 225 | --- | | | | | | |
| 17 | 230 | --- | | | | | | |
| 18 | 240 | --- | | | | | | |
| 19 | 260 | --- | | | | | | |
| 20 | 295 | --- | | | | | | |
| 21 | 290 | --- | | | | | 2.8 | |
| 22 | 310 | --- | | | | | 2.8 | |
| 23 | (345) | --- | | | | | 2.4 | |

Time: 15.0°E.
Sweep: 1.5 Mc to 10.0 Mc in 9 minutes, automatic operation.

Table 30

Baker Lake, Canada (64.3°N, 96.0°W) November 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 5.4 | | | | | 5.2 | (2.8) |
| 01 | | 5.2 | | | --- | --- | 5.6 | (2.85) |
| 02 | | 5.0 | | | --- | --- | 4.6 | (2.85) |
| 03 | | 5.0 | | | --- | --- | 4.8 | --- |
| 04 | | 4.7 | | | --- | 1.6 | 4.5 | --- |
| 05 | | 4.6 | | | --- | 1.4 | 4.7 | (2.7) |
| 06 | | 4.6 | | | 130 | 1.8 | 4.0 | --- |
| 07 | | 4.8 | | | 120 | 1.9 | 2.4 | --- |
| 08 | | 5.1 | | | 110 | 2.2 | 3.3 | --- |
| 09 | | 6.0 | | | 110 | 2.4 | | (2.95) |
| 10 | | 7.0 | | | 110 | 2.6 | | 2.8 |
| 11 | | 8.2 | | | 110 | 2.8 | | 2.8 |
| 12 | | 9.7 | | | 115 | 2.8 | | 2.9 |
| 13 | | 11.9 | | | 115 | 2.5 | | 2.9 |
| 14 | | 10.4 | | | 120 | 2.4 | | 2.8 |
| 15 | | 8.2 | | | 120 | 2.1 | | 2.8 |
| 16 | | 7.0 | | | 120 | 1.9 | | (2.8) |
| 17 | | 6.1 | | | 130 | 2.0 | 3.8 | (2.8) |
| 18 | | 6.2 | | | 120 | 2.0 | 3.5 | --- |
| 19 | | 6.2 | | | 120 | 2.0 | 5.2 | (2.8) |
| 20 | | 6.4 | | | --- | 2.0 | 4.5 | --- |
| 21 | | 6.0 | | | --- | --- | 4.0 | (3.0) |
| 22 | | 6.2 | | | --- | --- | 5.1 | --- |
| 23 | | 5.8 | | | --- | --- | 4.7 | (2.8) |

Time: 90.0°W.
Sweep: 1.0 Mc to 16.0 Mc in 16 seconds.

Table 31

Churchill, Canada (50.0°N, 94.2°W) November 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | (5.0) | | | 130 | 2.6 | 5.9 | |
| 01 | | (5.0) | | | 130 | 2.4 | 5.0 | |
| 02 | | 5.0 | | | 145 | 2.1 | 5.0 | --- |
| 03 | | (5.2) | | | 135 | 2.0 | 4.6 | |
| 04 | | 4.9 | | | 130 | 2.2 | 4.3 | --- |
| 05 | | 4.6 | | | 120 | 2.5 | 4.2 | --- |
| 06 | | 5.1 | | | 120 | 2.6 | 4.4 | --- |
| 07 | | 5.0 | | | 120 | 2.6 | 4.5 | --- |
| 08 | | 6.0 | | | 120 | 2.7 | 3.0 | 2.9 |
| 09 | | 8.0 | | | 120 | 2.8 | <2.9 | 2.9 |
| 10 | | 10.0 | | | 120 | 2.8 | <3.2 | 2.9 |
| 11 | | 11.4 | | | 125 | 3.0 | | 2.9 |
| 12 | | 12.5 | | | 120 | 3.0 | | 2.75 |
| 13 | | 13.4 | | | 130 | 2.0 | <3.2 | 2.8 |
| 14 | | 13.6 | | | 125 | 2.8 | | 2.75 |
| 15 | | 13.3 | | | 130 | 2.5 | | 2.8 |
| 16 | | 11.8 | | | 120 | 2.0 | | 2.8 |
| 17 | | 6.6 | | | 125 | 2.0 | <3.0 | (2.75) |
| 18 | | (5.8) | | | 120 | 2.2 | 2.9 | --- |
| 19 | | 6.0 | | | 120 | 2.3 | 3.5 | --- |
| 20 | | (5.6) | | | 120 | 2.2 | 3.0 | --- |
| 21 | | (5.8) | | | 120 | 2.2 | 4.3 | --- |
| 22 | | (5.7) | | | 130 | 2.3 | 5.0 | |
| 23 | | (5.4) | | | 120 | 2.5 | 5.8 | |

Time: 90.0°W.
Sweep: 1.0 Mc to 17.0 Mc in 16 seconds.

Table 32

De Bilt, Holland (52.1°N, 5.2°E) November 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 315 | 4.4 | | | | | | 2.5 |
| 01 | 330 | 4.4 | | | | | | 2.3 |
| 02 | 325 | 4.1 | | | | | | 2.5 |
| 03 | 300 | 3.8 | | | | | | 2.5 |
| 04 | 300 | 3.9 | | | | | | 2.5 |
| 05 | 250 | 3.6 | | | | | | 2.7 |
| 06 | 280 | 4.0 | | | | | | 2.45 |
| 07 | 225 | 6.0 | | | | | | 2.95 |
| 08 | 220 | 9.7 | --- | --- | 120 | 2.4 | | 3.0 |
| 09 | 215 | 12.1 | --- | --- | 110 | 2.8 | | 2.95 |
| 10 | 220 | 13.2 | --- | --- | 110 | 3.0 | | 2.85 |
| 11 | 220 | >14.0 | --- | --- | 100 | 3.1 | | 2.8 |
| 12 | 220 | >14.5 | --- | --- | 100 | 3.2 | | 2.85 |
| 13 | 215 | >14.4 | --- | --- | 110 | 3.1 | | 2.8 |
| 14 | 220 | >14.2 | --- | --- | 110 | 2.8 | | 2.9 |
| 15 | 220 | >13.0 | --- | --- | 115 | 2.4 | | 2.9 |
| 16 | 210 | 12.0 | | | | | | 2.95 |
| 17 | 215 | >10.9 | | | | | | 2.9 |
| 18 | 215 | >9.0 | | | | | | 3.0 |
| 19 | 225 | >6.6 | | | | | | 2.8 |
| 20 | 250 | 5.7 | | | | | | 2.7 |
| 21 | 290 | >5.5 | | | | | | 2.65 |
| 22 | 295 | 5.0 | | | | | | 2.5 |
| 23 | 300 | 4.6 | | | | | | 2.5 |

Time: 0.0°.
Sweep: 1.4 Mc to 16.0 Mc in 40 seconds.

Table 33

Lindau/Harz, Germany (51.6°N, 10.1°E) November 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 310 | 5.00 | | | | | 3.1 | 2.50 |
| 01 | 310 | 4.80 | | | | | 3.1 | 2.45 |
| 02 | 330 | 4.70 | | | | | 3.0 | 2.40 |
| 03 | 320 | 4.40 | | | --- | E | 2.9 | 2.50 |
| 04 | 290 | 4.15 | | | --- | E | 3.1 | 2.60 |
| 05 | 270 | 3.90 | | | --- | E | 2.9 | 2.70 |
| 06 | 250 | 3.40 | | | --- | E | 3.1 | 2.60 |
| 07 | 255 | 4.70 | | | --- | E | 3.1 | 2.65 |
| 08 | 240 | 7.75 | | | 130 | 2.00 | 3.5 | 2.95 |
| 09 | 240 | 11.05 | | | 120 | 2.50 | 4.0 | 3.00 |
| 10 | 235 | 12.90 | | | 120 | 2.90 | 4.0 | 2.95 |
| 11 | 230 | 14.25 | | | 115 | 3.00 | 4.0 | 2.85 |
| 12 | 235 | 14.55 | | | 120 | 3.10 | 4.4 | 2.85 |
| 13 | 240 | 14.10 | | | 115 | 3.10 | 4.0 | 2.80 |
| 14 | 240 | 14.00 | | | 120 | 2.90 | 4.5 | 2.80 |
| 15 | 240 | 13.50 | | | 125 | 2.60 | 4.0 | 2.80 |
| 16 | 235 | 12.85 | | | 130 | 2.00 | 3.9 | 2.85 |
| 17 | 230 | 11.95 | | | --- | E | 3.6 | 2.05 |
| 18 | 230 | 9.95 | | | --- | E | 3.4 | 2.80 |
| 19 | 230 | 8.30 | | | --- | E | 3.4 | 2.80 |
| 20 | 240 | 6.30 | | | --- | E | 3.1 | 2.70 |
| 21 | 260 | 5.60 | | | | | 3.1 | 2.55 |
| 22 | 280 | 5.70 | | | | | 3.0 | 2.50 |
| 23 | 290 | 5.25 | | | | | 3.1 | 2.50 |

Time: 15.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 4 minutes.

Table 34

Winnipeg, Canada (49.9°N, 97.4°W) November 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 5.0 | | | | | <1.8 | (2.8) |
| 01 | | 5.0 | | | | | <1.5 | (2.8) |
| 02 | | 5.0 | | | | | <2.0 | --- |
| 03 | | 4.8 | | | | | <1.5 | --- |
| 04 | | 4.8 | | | | | <2.2 | --- |
| 05 | | 4.6 | | | | | <1.5 | --- |
| 06 | | 4.6 | | | | | <1.6 | (2.6) |
| 07 | | 4.9 | | | | | <1.6 | 2.75 |
| 08 | | 6.8 | | | 130 | 2.0 | | 2.9 |
| 09 | | 9.8 | | | 125 | 2.6 | | 3.0 |
| 10 | | 11.2 | | | 120 | 3.0 | | 2.9 |
| 11 | | 12.6 | | | 120 | 3.0 | | 2.9 |
| 12 | | 13.1 | | | 120 | 3.1 | | 2.9 |
| 13 | | 13.4 | | | 120 | 3.1 | | 2.8 |
| 14 | | 13.8 | | | 120 | 3.0 | | 2.8 |
| 15 | | 13.2 | | | 120 | 2.8 | | 2.8 |
| 16 | | 13.0 | | | 130 | 2.4 | | 2.85 |
| 17 | | 12.6 | | | --- | 1.8 | | 2.8 |
| 18 | | 11.0 | | | --- | --- | <1.6 | 2.8 |
| 19 | | 9.4 | | | --- | --- | <1.8 | 2.9 |
| 20 | | 8.0 | | | --- | --- | <1.8 | 2.9 |
| 21 | | 6.8 | | | --- | --- | <1.7 | 2.85 |
| 22 | | 6.0 | | | | | <1.8 | 2.9 |
| 23 | | 5.7 | | | | | <1.8 | 2.8 |

Time: 90.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 35

Ottawa, Canada (45.4°N, 75.9°W) November 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 6.0 | | | | | <1.5 | 2.7 |
| 01 | | 6.0 | | | | | <1.5 | 2.7 |
| 02 | | 5.8 | | | | | <1.8 | 2.7 |
| 03 | | 5.8 | | | | | <1.7 | 2.7 |
| 04 | | 5.5 | | | | | <1.6 | 2.7 |
| 05 | | 5.1 | | | | | <1.5 | 2.7 |
| 06 | | 4.9 | | | | | <1.6 | 2.7 |
| 07 | | 6.2 | | | 130 | 1.9 | | 2.9 |
| 08 | | 9.2 | | | 120 | 2.6 | | 3.0 |
| 09 | | 11.8 | | | 115 | 3.0 | | 3.0 |
| 10 | | 12.8 | | | 110 | 3.2 | | 2.9 |
| 11 | | 13.5 | | | 110 | 3.3 | | 2.8 |
| 12 | | 13.8 | | | 115 | 3.3 | | 2.8 |
| 13 | | 13.8 | | | 115 | 3.3 | | 2.9 |
| 14 | | 13.8 | | | 115 | 3.0 | | 2.9 |
| 15 | | 13.5 | | | 115 | 2.8 | | 2.85 |
| 16 | | 13.0 | | | 130 | 2.2 | | 2.9 |
| 17 | | 12.2 | | | --- | 1.5 | | 2.8 |
| 18 | | 10.9 | | | | | <1.6 | 2.85 |
| 19 | | 9.5 | | | | | <1.6 | 2.9 |
| 20 | | 8.4 | | | | | <1.6 | 2.8 |
| 21 | | 7.6 | | | | | <1.6 | 2.8 |
| 22 | | 7.0 | | | | | <1.6 | 2.8 |
| 23 | | 6.2 | | | | | <1.6 | 2.7 |

Time: 75.0°W.
Sweep: 1.0 Mc to 20.0 Mc in 15 seconds.

Table 36

Talara, Peru (4.6°S, 81.3°W) November 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 260 | (11.8) | | | | | 5.4 | 2.75 |
| 01 | 250 | 10.8 | | | | | 4.7 | 2.80 |
| 02 | 240 | 10.3 | | | | | 4.4 | 3.00 |
| 03 | 240 | 9.0 | | | | | 3.8 | 3.00 |
| 04 | 240 | 7.8 | | | | | 4.1 | 3.05 |
| 05 | 240 | 6.8 | | | | | 4.0 | 3.05 |
| 06 | 280 | 7.6 | | | | | 3.6 | 2.85 |
| 07 | 260 | 11.6 | | | --- | --- | 4.2 | 2.95 |
| 08 | 250 | 14.0 | 245 | --- | 119 | 3.5 | 4.8 | 2.90 |
| 09 | --- | 15.0 | 240 | --- | 119 | 3.9 | 5.8 | 2.70 |
| 10 | --- | 15.0 | 230 | --- | 117 | 4.2 | 5.2 | 2.50 |
| 11 | --- | 14.7 | 225 | --- | 117 | 4.3 | | 2.35 |
| 12 | --- | 14.8 | 220 | --- | 117 | 4.4 | | 2.20 |
| 13 | --- | 14.5 | 220 | --- | 113 | 4.3 | 4.8 | 2.15 |
| 14 | --- | 14.2 | 225 | --- | 113 | 4.2 | 4.6 | 2.15 |
| 15 | --- | (13.7) | 225 | --- | 112 | 4.0 | 6.2 | 2.15 |
| 16 | 240 | (13.1) | 240 | --- | --- | --- | 6.7 | (2.10) |
| 17 | 260 | (12.8) | | | --- | --- | 5.4 | (2.20) |
| 18 | 290 | (13.0) | | | | | 4.8 | (2.15) |
| 19 | 340 | (12.0) | | | | | 3.6 | (2.30) |
| 20 | 380 | (11.7) | | | | | 3.4 | (2.30) |
| 21 | 330 | (11.8) | | | | | 3.3 | (2.40) |
| 22 | 290 | (11.5) | | | | | 4.4 | (2.50) |
| 23 | 270 | (11.6) | | | | | 5.4 | (2.60) |

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 37

Huancayo, Peru (12.0°S, 75.3°W) November 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 300 | 9.4 | | | | | 3.9 | 2.60 |
| 01 | 270 | 9.7 | | | | | 3.6 | 2.70 |
| 02 | 250 | 9.6 | | | | | 4.5 | 2.90 |
| 03 | 240 | 8.5 | | | | | 4.4 | 2.90 |
| 04 | 230 | 7.2 | | | | | 3.6 | 3.10 |
| 05 | 230 | 6.7 | | | | | 4.3 | 3.00 |
| 06 | 260 | 10.2 | | | 123 | 2.4 | 5.2 | 3.00 |
| 07 | 240 | 12.7 | --- | --- | 112 | 3.2 | 5.6 | 2.90 |
| 08 | --- | 13.9 | 230 | --- | 111 | 3.6 | 9.3 | 2.70 |
| 09 | --- | 14.5 | 225 | --- | --- | --- | 11.6 | 2.50 |
| 10 | --- | 14.8 | 220 | --- | --- | --- | 12.5 | 2.30 |
| 11 | --- | 14.5 | 215 | --- | --- | --- | 12.8 | 2.15 |
| 12 | --- | 13.9 | 210 | --- | --- | --- | 12.8 | 2.10 |
| 13 | --- | 13.2 | 210 | --- | | | 13.0 | 2.00 |
| 14 | --- | 12.5 | 210 | --- | | | 13.2 | 2.05 |
| 15 | (230) | 12.0 | 220 | --- | | | 12.2 | 2.05 |
| 16 | 240 | 11.6 | --- | --- | | | 11.1 | 2.00 |
| 17 | 270 | 11.5 | | | | | 8.5 | 2.05 |
| 18 | 300 | (10.4) | | | | | 5.0 | (2.15) |
| 19 | 400 | 9.6 | | | | | | 2.10 |
| 20 | 430 | 8.8 | | | | | | 2.00 |
| 21 | 400 | 8.8 | | | | | | 2.05 |
| 22 | 360 | 9.4 | | | | | | 2.20 |
| 23 | 320 | 9.4 | | | | | (3.8) | 2.45 |

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 38

Rarotonga I. (21.2°S, 159.8°W) November 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 300 | (9.5) | | | | | 2.6 | (2.75) |
| 01 | 310 | 9.5 | | | | | 1.9 | 2.7 |
| 02 | 330 | (9.0) | | | | | | (2.6) |
| 03 | 320 | (9.0) | | | | | | (2.7) |
| 04 | 300 | 8.9 | | | | | | 2.7 |
| 05 | 310 | 9.0 | | | --- | E | 1.8 | 2.7 |
| 06 | 260 | 10.5 | --- | --- | 115 | 2.4 | | 2.9 |
| 07 | 260 | 11.6 | 250 | 4.5 | 115 | 3.1 | | 2.8 |
| 08 | 260 | 12.2 | 250 | 5.2 | 110 | 3.5 | | 2.7 |
| 09 | 340 | 12.6 | 250 | 7.2 | 110 | 3.8 | 5.5 | 2.5 |
| 10 | 360 | 13.7 | 240 | 7.2 | 110 | 4.0 | 4.8 | 2.5 |
| 11 | 400 | 14.2 | 240 | 7.5 | 110 | 4.0 | 4.6 | 2.5 |
| 12 | 410 | 14.6 | 240 | 7.5 | 110 | 4.0 | | 2.5 |
| 13 | 430 | 14.6 | 250 | 7.4 | 110 | 4.0 | | 2.6 |
| 14 | 420 | 14.6 | 250 | 7.2 | 110 | 4.0 | 4.3 | 2.6 |
| 15 | 420 | 14.3 | 250 | 6.8 | 110 | 3.9 | | 2.6 |
| 16 | 400 | 13.8 | 250 | 6.8 | 110 | 3.6 | 5.3 | 2.55 |
| 17 | 370 | 13.2 | 260 | 6.4 | 115 | 3.0 | 6.0 | 2.6 |
| 18 | 320 | 12.6 | --- | --- | 120 | 2.2 | 5.6 | 2.6 |
| 19 | 340 | 12.5 | | | | | 5.2 | 2.5 |
| 20 | 360 | 11.6 | | | | | 5.2 | 2.5 |
| 21 | 350 | (10.8) | | | | | 4.4 | (2.5) |
| 22 | 330 | (10.0) | | | | | 3.4 | (2.55) |
| 23 | 320 | (10.2) | | | | | 2.9 | (2.8) |

Time: 157.5°W.
Sweep: 1.5 Mc to 20.0 Mc in 5 minutes, manual operation.

Table 39

Johannesburg, Union of S. Africa (26.2°S, 20.1°E) November 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | <280 | 7.6 | | | | | 2.2 | 2.7 |
| 01 | <270 | 6.6 | | | | | 2.2 | 2.7 |
| 02 | <280 | 6.1 | | | | | 1.8 | 2.6 |
| 03 | <280 | 5.8 | | | | | | 2.6 |
| 04 | <300 | 5.2 | | | | | | 2.5 |
| 05 | 300 | 5.9 | | | --- | --- | | 2.6 |
| 06 | 250 | 8.0 | --- | --- | 120 | 2.6 | 3.0 | 2.85 |
| 07 | 250 | 9.4 | 240 | --- | 110 | 3.2 | | 2.8 |
| 08 | 290 | 10.6 | 230 | --- | 110 | 3.7 | | 2.7 |
| 09 | 350 | 11.1 | 220 | 6.1 | 110 | 4.0 | | 2.6 |
| 10 | 400 | 11.3 | 220 | 6.4 | 110 | 4.1 | 4.6 | 2.5 |
| 11 | 400 | 11.8 | 220 | 6.4 | 110 | --- | | 2.5 |
| 12 | 420 | 12.0 | 230 | 6.5 | 110 | --- | | 2.5 |
| 13 | 440 | 12.0 | 220 | 6.4 | 110 | --- | | 2.5 |
| 14 | 420 | 11.8 | 230 | 6.2 | 110 | --- | | 2.5 |
| 15 | 410 | 11.4 | 240 | 6.1 | 110 | 4.0 | | 2.5 |
| 16 | 400 | 11.0 | 240 | 5.5 | 110 | 3.7 | | 2.5 |
| 17 | (380) | 10.8 | 250 | --- | 110 | 3.1 | 3.8 | 2.5 |
| 18 | 270 | 10.8 | 270 | --- | 120 | 2.2 | 2.9 | 2.6 |
| 19 | 260 | 10.6 | | | | | 2.0 | 2.7 |
| 20 | 260 | 9.7 | | | | | | 2.7 |
| 21 | <260 | 9.0 | | | | | | 2.7 |
| 22 | 260 | 8.4 | | | | | 2.0 | 2.6 |
| 23 | <280 | 8.0 | | | | | 2.1 | 2.6 |

Time: 30.0°E.
Sweep: 1.0 Mc to 15.0 Mc in 7 seconds.

Table 40

Watheroo, W. Australia (30.3°S, 115.9°E) November 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 320 | 7.2 | | | | | 3.6 | 2.6 |
| 01 | 300 | 6.8 | | | | | 3.1 | 2.5 |
| 02 | 310 | 6.4 | | | | | 2.7 | 2.4 |
| 03 | 320 | 6.2 | | | | | 2.7 | 2.4 |
| 04 | 330 | 6.0 | | | | | 2.6 | 2.5 |
| 05 | 320 | 6.0 | | | | 1.8 | | 2.6 |
| 06 | 260 | 7.1 | 270 | --- | | 2.6 | 2.8 | 2.8 |
| 07 | 260 | 8.8 | 250 | 4.6 | | 3.2 | 3.7 | 2.7 |
| 08 | 420 | 9.5 | 230 | 5.8 | | 3.6 | 4.0 | 2.6 |
| 09 | 430 | 9.5 | 240 | 6.4 | | 3.9 | 4.5 | 2.55 |
| 10 | 440 | 9.5 | 240 | 6.4 | | 4.0 | 4.5 | 2.5 |
| 11 | 410 | 10.8 | 250 | 6.6 | | 4.2 | 4.9 | 2.5 |
| 12 | 430 | 9.8 | 240 | 6.5 | | 4.2 | 5.2 | 2.5 |
| 13 | 430 | 10.2 | 240 | 6.5 | | 4.1 | 4.6 | 2.4 |
| 14 | 450 | 9.8 | 250 | 6.3 | | 4.1 | 4.4 | 2.4 |
| 15 | 420 | 9.6 | 240 | 6.4 | | 4.0 | 4.2 | 2.5 |
| 16 | 410 | 9.5 | 250 | 6.2 | | 3.7 | 3.9 | 2.5 |
| 17 | (380) | 9.0 | 260 | 5.6 | | 3.2 | 3.4 | 2.6 |
| 18 | 270 | 9.0 | 280 | --- | | 2.4 | 2.7 | 2.5 |
| 19 | 280 | 8.7 | | | | 1.6 | 2.2 | 2.6 |
| 20 | 280 | 8.4 | | | | | 2.7 | 2.5 |
| 21 | 300 | 8.2 | | | | | 2.2 | 2.5 |
| 22 | 320 | 7.6 | | | | | 2.9 | 2.45 |
| 23 | 310 | 7.1 | | | | | 3.0 | 2.5 |

Time: 120.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 45 seconds.

Table 41

Capetown, Union of S. Africa (34.2°S, 18.3°E) November 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 200 | 6.7 | | | | | | 2.6 |
| 01 | <290 | 6.0 | | | | | 2.0 | 2.5 |
| 02 | <300 | 5.8 | | | | | 2.0 | 2.5 |
| 03 | <280 | 5.5 | | | | | 1.0 | 2.4 |
| 04 | <300 | 5.2 | | | | | | 2.4 |
| 05 | 330 | 5.1 | | | | | | 2.4 |
| 06 | 280 | 6.6 | 300 | --- | 130 | 2.2 | 2.6 | 2.7 |
| 07 | 260 | 8.2 | 250 | --- | 120 | 2.9 | | 2.7 |
| 08 | 490 | 9.4 | 250 | 5.4 | 110 | 3.4 | | 2.5 |
| 09 | 410 | 10.6 | 240 | 5.6 | 110 | 3.8 | | 2.5 |
| 10 | 430 | 11.0 | 230 | 6.4 | 110 | --- | | 2.4 |
| 11 | 420 | 11.4 | 220 | 6.4 | 110 | --- | 4.6 | 2.4 |
| 12 | 410 | 11.8 | --- | 6.3 | 110 | --- | 4.6 | 2.4 |
| 13 | 420 | 12.0 | --- | 6.4 | 110 | --- | 4.3 | 2.4 |
| 14 | 420 | 11.8 | 240 | 6.4 | 110 | --- | | 2.4 |
| 15 | 410 | 11.7 | 250 | 6.3 | 110 | --- | | 2.4 |
| 16 | 400 | 11.2 | 250 | 6.0 | 110 | 3.8 | | 2.4 |
| 17 | 370 | 11.0 | 250 | 5.6 | 110 | 3.5 | | 2.5 |
| 18 | (320) | 10.8 | 260 | --- | 110 | 3.0 | | 2.55 |
| 19 | 270 | 10.4 | --- | --- | 120 | 2.1 | 2.8 | 2.6 |
| 20 | 260 | 10.0 | | | | | 2.1 | 2.7 |
| 21 | 250 | 8.7 | | | | | 1.8 | 2.6 |
| 22 | 260 | 7.0 | | | | | 1.8 | 2.6 |
| 23 | 270 | 7.0 | | | | | | 2.6 |

Time: 30.0°E.
Sweep: 1.0 Mc to 15.0 Mc in 7 seconds.

Table 42

Buenos Aires, Argentina (34.5°S, 58.5°W) November 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 320 | 12.1 | | | | | | 2.7 |
| 01 | 300 | 11.9 | | | | | | 2.7 |
| 02 | 310 | 11.0 | | | | | | 2.6 |
| 03 | 320 | 10.0 | | | | | | 2.5 |
| 04 | 330 | 9.5 | | | | | | 2.4 |
| 05 | 260 | 9.6 | | | | | | 2.5 |
| 06 | 220 | 10.2 | | | | | | 2.8 |
| 07 | 230 | 11.1 | 210 | --- | | | | 2.7 |
| 08 | 320 | 11.5 | 220 | --- | | | | 2.6 |
| 09 | 380 | 11.8 | 220 | --- | | | | 2.6 |
| 10 | 400 | 12.5 | 220 | --- | --- | --- | | 2.5 |
| 11 | 410 | 13.1 | 220 | --- | --- | --- | | 2.6 |
| 12 | 410 | 13.2 | 220 | --- | --- | --- | | 2.6 |
| 13 | 410 | 13.3 | 220 | --- | | | | 2.65 |
| 14 | 410 | 13.0 | 220 | --- | | | | 2.6 |
| 15 | 400 | 12.5 | 230 | --- | | | | 2.7 |
| 16 | 370 | 13.0 | 230 | --- | | | | 2.7 |
| 17 | 330 | 12.5 | 250 | --- | | | | 2.7 |
| 18 | 300 | 13.0 | 270 | --- | | | | 2.7 |
| 19 | 320 | (12.7) | | | | | | (2.6) |
| 20 | 390 | (12.0) | | | | | | (2.5) |
| 21 | 390 | (12.6) | | | | | | 2.5 |
| 22 | 380 | 12.6 | | | | | | 2.5 |
| 23 | 360 | 12.5 | | | | | | 2.6 |

Time: 60.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 27 seconds.

Table 43

Decepcion I. (63.0°S, 60.7°W) November 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 310 | 9.0 | | | | | | 2.8 |
| 01 | 310 | 8.8 | | | | | | 2.8 |
| 02 | 310 | 8.1 | | | | | | 2.8 |
| 03 | 330 | 7.8 | | | | | | 2.8 |
| 04 | 330 | 8.2 | | | | | | 2.75 |
| 05 | 300 | 8.0 | | | | | | 2.8 |
| 06 | 280 | 8.2 | | | | | 3.4 | 2.95 |
| 07 | 260 | 8.9 | | | | | 3.4 | 3.2 |
| 08 | 250 | 8.6 | | | | | 3.5 | 3.2 |
| 09 | 240 | 9.0 | | | | | 3.5 | 3.1 |
| 10 | 250 | 9.4 | | | | | 3.6 | 3.1 |
| 11 | 240 | 9.2 | | | | | 3.4 | 3.3 |
| 12 | 240 | 9.2 | | | | | 3.4 | 3.3 |
| 13 | 240 | 8.8 | | | | | 3.4 | 3.4 |
| 14 | 240 | 8.8 | | | | | 3.4 | 3.5 |
| 15 | 230 | 8.6 | | | | | 3.6 | 3.3 |
| 16 | 240 | 8.4 | | | | | 3.4 | 3.2 |
| 17 | 240 | 8.0 | | | | | 3.4 | 3.3 |
| 18 | 250 | 8.3 | | | | | 3.4 | 3.2 |
| 19 | 250 | 8.1 | | | | | 3.4 | 3.2 |
| 20 | 280 | 8.4 | | | | | | 3.1 |
| 21 | 300 | 8.2 | | | | | | 3.1 |
| 22 | 300 | 8.6 | | | | | | 2.9 |
| 23 | 310 | 8.8 | | | | | | 2.9 |

Time: 60.0°W.
Sweep: 1.5 Mc to 16.0 Mc in 15 minutes, manual operation.

Table 44

Resolute Bay, Canada (74.7°N, 94.9°W) October 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 6.0 | | | 130 | --- | | |
| 01 | | 6.1 | | | 135 | --- | | --- |
| 02 | | 6.1 | | | 130 | --- | | --- |
| 03 | | 6.0 | | | 140 | --- | | --- |
| 04 | | 5.3 | | | --- | --- | | |
| 05 | | 5.2 | | | 150 | 1.3 | | |
| 06 | | 5.3 | | | 135 | 1.5 | | --- |
| 07 | | 6.3 | | | 130 | 1.6 | | (2.6) |
| 08 | | 6.9 | | | 130 | 1.7 | | (2.5) |
| 09 | | 8.0 | | | 125 | 1.9 | | (2.7) |
| 10 | | 7.5 | | | 130 | 2.1 | | (2.6) |
| 11 | | 8.3 | | --- | 130 | 2.2 | | (2.6) |
| 12 | | 7.8 | | --- | 130 | 2.2 | | (2.6) |
| 13 | | 7.8 | | --- | 130 | 2.2 | | --- |
| 14 | | 7.8 | | --- | 130 | 2.0 | | 2.75 |
| 15 | | 8.0 | | 3.9 | 130 | 2.0 | | (2.7) |
| 16 | | 7.9 | | --- | 130 | 1.8 | | --- |
| 17 | | 7.3 | | --- | 110 | 1.7 | | (2.7) |
| 18 | | 7.1 | | | 120 | 1.6 | | (2.7) |
| 19 | | 7.0 | | | 115 | 1.4 | | (2.7) |
| 20 | | 6.3 | | | 135 | --- | | |
| 21 | | 6.8 | | | 120 | --- | | --- |
| 22 | | 6.7 | | | 120 | --- | | |
| 23 | | 6.0 | | | 130 | --- | | --- |

Time: 90.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 45

Tromso, Norway (69.7°N, 19.0°E) October 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | (305) | ---- | | | | | 3.2 | ---- |
| 01 | (305) | (6.45) | | | | | 3.2 | (2.45) |
| 02 | (285) | (6.25) | | | | | 2.9 | (2.55) |
| 03 | 295 | (6.00) | | | | | 3.0 | (2.70) |
| 04 | 265 | 5.70 | | | | | 2.7 | 2.60 |
| 05 | 295 | 5.50 | | | | | 2.0 | 2.60 |
| 06 | 275 | 5.75 | --- | --- | --- | ---- | 1.3 | 2.70 |
| 07 | 250 | 7.05 | --- | --- | --- | 1.60 | 1.7 | 2.05 |
| 08 | 250 | 8.25 | --- | --- | 110 | 2.20 | | 2.90 |
| 09 | 250 | 9.60 | 250 | --- | 105 | 2.40 | | 2.90 |
| 10 | 250 | 11.00 | 250 | --- | 105 | 2.55 | | 2.90 |
| 11 | 250 | 11.10 | 245 | --- | 105 | 2.60 | | 2.00 |
| 12 | 250 | 11.70 | 250 | --- | 110 | 2.55 | | 2.85 |
| 13 | 245 | 11.30 | 245 | --- | 110 | 2.50 | | 2.90 |
| 14 | 245 | 11.00 | 250 | --- | 105 | 2.35 | | 2.90 |
| 15 | 245 | 10.50 | --- | --- | 115 | 2.05 | | 2.90 |
| 16 | 240 | 10.90 | | | --- | ---- | 2.1 | 2.90 |
| 17 | 240 | 10.00 | | | | | 2.6 | 2.90 |
| 18 | 240 | 9.10 | | | | | 2.0 | 2.90 |
| 19 | 240 | 0.00 | | | | | 3.3 | 2.80 |
| 20 | 250 | 8.25 | | | | | 3.2 | (2.75) |
| 21 | (245) | (7.05) | | | | | 2.9 | ---- |
| 22 | (290) | (7.05) | | | | | 2.9 | ---- |
| 23 | (310) | (6.80) | | | | | 2.7 | ---- |

Time: 15.0°E.
Sweep: 0.7 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 46

Churchill, Canada (58.8°N, 94.2°W) October 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 5.3 | | | --- | 1.9 | 6.0 | (2.65) |
| 01 | | 5.2 | | | --- | 1.8 | 5.7 | ---- |
| 02 | | (5.0) | | | --- | 1.7 | 5.0 | ---- |
| 03 | | 4.7 | | | 145 | 1.8 | 4.8 | ---- |
| 04 | | (4.6) | | | 130 | 2.0 | 4.5 | ---- |
| 05 | | 4.6 | | | 130 | 2.5 | 4.5 | ---- |
| 06 | | 5.0 | | | 120 | 2.7 | | 2.8 |
| 07 | | 6.0 | | --- | 120 | 2.7 | | 3.0 |
| 08 | | 7.3 | | --- | 110 | 3.0 | | 3.1 |
| 09 | | 8.0 | | 4.3 | 110 | 3.0 | | 3.0 |
| 10 | | 9.0 | | 4.6 | 110 | 3.1 | | 2.9 |
| 11 | | 9.0 | | 4.5 | 110 | 3.1 | | 2.0 |
| 12 | | 10.9 | | 4.8 | 110 | 3.1 | | 2.8 |
| 13 | | 11.2 | | 4.8 | 110 | 3.0 | | 2.8 |
| 14 | | 11.5 | | 4.8 | 120 | 3.0 | | 2.7 |
| 15 | | 11.8 | | --- | 120 | 2.9 | | 2.8 |
| 16 | | 11.0 | | --- | 120 | 2.6 | | 2.9 |
| 17 | | 10.8 | | | 130 | 2.1 | | 2.9 |
| 18 | | 6.6 | | | 130 | 2.0 | | 2.05 |
| 19 | | 6.0 | | | 130 | 2.2 | 4.0 | 2.9 |
| 20 | | 6.0 | | | 130 | 2.4 | 3.2 | (2.8) |
| 21 | | 5.8 | | | 130 | 2.2 | 4.0 | (2.6) |
| 22 | | 5.5 | | | 135 | 2.0 | 5.0 | ---- |
| 23 | | 5.9 | | | 130 | 2.0 | 5.5 | (2.7) |

Time: 90.0°W.
Sweep: 1.0 Mc to 16.0 Mc in 16 seconds.

Table 47

Lindau/Harz, Germany (51.6°N, 10.1°E) October 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 295 | 6.10 | | | | | 2.5 | 2.55 |
| 01 | 290 | 5.90 | | | | | 2.9 | 2.45 |
| 02 | 290 | 5.75 | | | | | 2.7 | 2.50 |
| 03 | 290 | 5.50 | | | --- | E | 2.6 | 2.50 |
| 04 | 290 | 5.30 | | | --- | E | 2.7 | 2.60 |
| 05 | 260 | 4.95 | | | --- | E | 2.9 | 2.65 |
| 06 | 260 | 4.80 | | | --- | E | 3.0 | 2.65 |
| 07 | 250 | 7.10 | | | --- | 1.70 | 3.5 | 2.95 |
| 08 | 235 | 10.05 | | | 120 | 2.45 | 3.5 | 3.00 |
| 09 | 235 | 11.90 | | | 110 | 2.90 | 3.6 | 2.95 |
| 10 | 235 | 12.85 | | | 110 | 3.10 | 3.8 | 2.90 |
| 11 | 230 | 13.30 | | | 110 | 3.20 | 3.9 | 2.80 |
| 12 | 230 | 13.40 | | | 110 | 3.25 | 4.0 | 2.75 |
| 13 | 235 | 13.35 | | | 110 | 3.25 | 3.9 | 2.75 |
| 14 | 240 | 13.30 | | | 115 | 3.15 | 3.0 | 2.75 |
| 15 | 240 | 13.20 | | | 115 | 2.95 | 3.6 | 2.75 |
| 16 | 240 | 13.00 | | | 115 | 2.50 | 3.5 | 2.80 |
| 17 | 240 | 12.30 | | | --- | 1.80 | 3.4 | 2.85 |
| 18 | 230 | 11.20 | | | --- | E | 3.1 | 2.05 |
| 19 | 230 | 9.60 | | | --- | E | 3.2 | 2.05 |
| 20 | 240 | 8.10 | | | --- | E | 3.1 | 2.80 |
| 21 | 240 | 7.10 | | | | | 3.0 | 2.70 |
| 22 | 270 | 6.55 | | | | | 2.9 | 2.60 |
| 23 | 280 | 6.30 | | | | | 2.7 | 2.55 |

Time: 15.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 4 minutes.

Table 48

Winnipeg, Canada (49.9°N, 97.4°W) October 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 5.0 | | | | | <1.5 | 2.80 |
| 01 | | 5.0 | | | | | <1.5 | 2.80 |
| 02 | | 4.6 | | | | | <1.5 | (2.70) |
| 03 | | 4.6 | | | | | <1.5 | (2.70) |
| 04 | | 4.4 | | | | | <1.5 | (2.70) |
| 05 | | 4.3 | | | | | <1.6 | (2.75) |
| 06 | | 4.3 | | | | | <1.5 | (2.80) |
| 07 | | 5.5 | | | 135 | 1.8 | | 2.95 |
| 08 | | 7.2 | | --- | 120 | 2.4 | | 3.10 |
| 09 | | 8.9 | | --- | 120 | 2.9 | | 3.00 |
| 10 | | 9.6 | | --- | 120 | 3.0 | | 2.90 |
| 11 | | 10.8 | | | 115 | 3.2 | | 2.85 |
| 12 | | 11.0 | | | 110 | 3.3 | | 2.80 |
| 13 | | 12.0 | | | 110 | 3.2 | | 2.80 |
| 14 | | 12.2 | | | 110 | 3.1 | | 2.80 |
| 15 | | 12.2 | | | 115 | 3.0 | | 2.80 |
| 16 | | 12.2 | | | 130 | 2.7 | | 2.80 |
| 17 | | 12.0 | | | 130 | 2.1 | | 2.90 |
| 18 | | 11.0 | | | --- | --- | | 2.90 |
| 19 | | 9.5 | | | | | <1.5 | 2.90 |
| 20 | | 8.0 | | | | | <1.5 | 2.90 |
| 21 | | 7.0 | | | | | <1.5 | 2.90 |
| 22 | | 6.0 | | | | | <1.5 | 2.80 |
| 23 | | 5.2 | | | | | <1.5 | 2.80 |

Time: 90.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 49

Ottawa, Canada (45.4°N, 75.9°W) October 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 6.2 | | | | | <1.5 | 2.7 |
| 01 | | 6.0 | | | | | <1.5 | 2.7 |
| 02 | | 5.5 | | | | | <1.5 | 2.7 |
| 03 | | 5.0 | | | | | <1.5 | 2.7 |
| 04 | | 4.7 | | | | | <1.5 | 2.7 |
| 05 | | 4.4 | | | --- | --- | <1.5 | 2.7 |
| 06 | | 5.0 | | | --- | 1.6 | | 2.7 |
| 07 | | 7.3 | | | 115 | 2.2 | | 3.0 |
| 08 | | 10.0 | | | 110 | 2.8 | | 3.0 |
| 09 | | 11.0 | | | 105 | 3.1 | | 3.0 |
| 10 | | 11.9 | | | 105 | 3.3 | | 2.9 |
| 11 | | 12.2 | | | 105 | 3.5 | | 2.9 |
| 12 | | 12.3 | | | 105 | 3.6 | | 2.9 |
| 13 | | 12.4 | | | 105 | 3.5 | | 2.9 |
| 14 | | 12.1 | | | 105 | 3.3 | | 2.9 |
| 15 | | 12.2 | | | 110 | 3.0 | | 2.9 |
| 16 | | 12.0 | | | 110 | 2.7 | | 2.9 |
| 17 | | 11.6 | | | 120 | 2.0 | | 3.0 |
| 18 | | 10.7 | | | --- | --- | <1.5 | 2.9 |
| 19 | | 9.2 | | | | | <1.5 | 2.9 |
| 20 | | 8.1 | | | | | <1.5 | 2.8 |
| 21 | | 7.2 | | | | | <1.5 | 2.8 |
| 22 | | 6.9 | | | | | <1.5 | 2.7 |
| 23 | | 6.8 | | | | | <1.5 | 2.7 |

Time: 75.0°W.
Sweep: 1.0 Mc to 15.0 Mc in 15 seconds.

Table 50

Wakkanai, Japan (45.4°N, 141.7°E) October 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 300 | 6.0 | | | | | | |
| 01 | 300 | 6.0 | | | | | 1.8 | |
| 02 | 290 | 5.8 | | | | | 1.5 | |
| 03 | 280 | 5.8 | | | | | | |
| 04 | 270 | 5.8 | | | | | 2.0 | |
| 05 | 270 | 5.6 | | | | | | |
| 06 | 240 | 7.7 | | | | | | |
| 07 | 230 | 11.0 | | | | | | |
| 08 | 220 | 12.5 | | | | | | |
| 09 | 220 | 12.0 | | | | | | |
| 10 | 220 | 12.8 | | | | | | |
| 11 | 230 | 12.8 | | | | | | |
| 12 | 230 | 12.7 | | | | | | |
| 13 | 230 | 12.6 | | | | | | |
| 14 | 240 | 12.5 | | | | | | |
| 15 | 240 | 12.5 | | | | | | |
| 16 | 240 | 12.3 | | | | | | |
| 17 | 230 | 11.5 | | | | | 2.0 | |
| 18 | 230 | 9.8 | | | | | | |
| 19 | 230 | 8.5 | | | | | | |
| 20 | 240 | 7.3 | | | | | | |
| 21 | 260 | 6.6 | | | | | | |
| 22 | 260 | 6.4 | | | | | | |
| 23 | 280 | 6.1 | | | | | | |

Time: 135.0°E.
Sweep: 1.0 Mc to 22.0 Mc in 1 minute.

Table 51

Akita, Japan (39.7°N, 140.1°E) October 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 290 | 6.0 | | | | | 2.2 | |
| 01 | 290 | 6.0 | | | | | 2.4 | |
| 02 | 290 | 6.0 | | | | | 2.8 | |
| 03 | 280 | 5.8 | | | | | 2.5 | |
| 04 | 280 | 5.5 | | | | | 2.8 | |
| 05 | 290 | 5.5 | | | | | 2.4 | |
| 06 | 240 | 8.0 | | | | | 2.5 | |
| 07 | 240 | 11.2 | | | | | 3.2 | |
| 08 | 240 | 12.6 | | | | | | |
| 09 | 240 | 12.9 | | | | | | |
| 10 | 240 | 13.5 | | | | | | |
| 11 | 240 | 13.6 | | | | | | |
| 12 | 240 | 13.6 | | | | | | |
| 13 | 240 | 13.4 | | | | | | |
| 14 | 240 | 13.4 | | | | | | |
| 15 | 250 | 12.8 | | | | | | |
| 16 | 250 | 12.2 | | | | | 3.5 | |
| 17 | 240 | 11.7 | | | | | 3.5 | |
| 18 | 240 | 10.2 | | | | | 3.5 | |
| 19 | 250 | 8.6 | | | | | 3.1 | |
| 20 | 240 | 7.8 | | | | | 2.4 | |
| 21 | 260 | 7.2 | | | | | 2.3 | |
| 22 | 280 | 6.6 | | | | | 2.2 | |
| 23 | 280 | 6.3 | | | | | 2.2 | |

Time: 135.0°E.
Sweep: 0.85 Mc to 22.0 Mc in 2 minutes.

Table 52

Tokyo, Japan (35.7°N, 139.5°E) October 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 290 | 6.7 | | | | | | 2.6 |
| 01 | 290 | 6.3 | | | | | | 2.6 |
| 02 | 280 | 6.1 | | | | | | 2.6 |
| 03 | 280 | 6.0 | | | | | | 2.6 |
| 04 | 270 | 5.4 | | | | | 1.9 | 2.6 |
| 05 | 280 | 5.4 | | | | | | 2.6 |
| 06 | 250 | 8.0 | | | 160 | 1.9 | | 3.0 |
| 07 | 230 | 11.8 | --- | --- | 120 | 2.5 | 3.0 | (3.15) |
| 08 | 240 | 13.0 | 230 | --- | 110 | 3.1 | 3.2 | 3.1 |
| 09 | 230 | 13.0 | 230 | --- | 120 | 3.3 | 3.4 | 2.9 |
| 10 | 240 | 13.6 | 220 | --- | 110 | 3.4 | | 2.8 |
| 11 | 250 | 13.8 | 220 | 4.6 | 120 | 3.6 | | 2.8 |
| 12 | 250 | 14.0 | 230 | --- | 120 | 3.5 | | 2.7 |
| 13 | 250 | 14.0 | 240 | --- | 120 | (3.6) | | 2.7 |
| 14 | 250 | 13.8 | 250 | --- | 120 | 3.4 | | 2.7 |
| 15 | 250 | 13.6 | 240 | --- | 120 | 3.2 | 4.4 | 2.7 |
| 16 | 250 | 12.9 | --- | --- | 120 | 2.5 | 3.8 | 2.8 |
| 17 | 250 | 12.5 | --- | --- | --- | --- | 3.2 | 2.9 |
| 18 | 240 | 11.0 | | | | | 3.1 | 2.9 |
| 19 | 250 | 9.1 | | | | | 2.8 | 2.8 |
| 20 | 260 | 8.5 | | | | | 2.4 | 2.8 |
| 21 | 260 | 7.6 | | | | | 2.2 | 2.7 |
| 22 | 270 | 7.3 | | | | | | 2.7 |
| 23 | 280 | 6.8 | | | | | | 2.7 |

Time: 135.0°E.
Sweep: 1.0 Mc to 17.2 Mc in 2 minutes.

Table 53

Yamagawa, Japan (31.2°N, 130.6°E) October 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 250 | 8.6 | | | | | | |
| 01 | 260 | 7.8 | | | | | | |
| 02 | 260 | 7.2 | | | | | | |
| 03 | 250 | 6.9 | | | | | 1.8 | |
| 04 | 240 | 6.2 | | | | | | |
| 05 | 250 | 5.7 | | | | | | |
| 06 | 260 | 6.1 | | | | | | |
| 07 | 240 | 9.8 | | | | | | |
| 08 | 240 | 12.3 | | | | | | |
| 09 | 230 | 13.0 | | | | | 4.5 | |
| 10 | 240 | 13.4 | | | | | 4.7 | |
| 11 | 240 | 13.8 | | | | | 4.7 | |
| 12 | 240 | 14.4 | | | | | 4.6 | |
| 13 | 240 | 14.6 | | | | | 4.9 | |
| 14 | 240 | 14.6 | | | | | 4.6 | |
| 15 | 240 | 14.4 | | | | | 4.6 | |
| 16 | 240 | 14.2 | | | | | 4.8 | |
| 17 | 250 | 13.8 | | | | | 4.8 | |
| 18 | 240 | 13.4 | | | | | 4.2 | |
| 19 | 240 | 12.1 | | | | | 3.4 | |
| 20 | 250 | 11.8 | | | | | 3.1 | |
| 21 | 240 | 10.6 | | | | | 2.5 | |
| 22 | 250 | 10.0 | | | | | 2.0 | |
| 23 | 250 | 9.2 | | | | | 2.0 | |

Time: 135.0°E.
Sweep: 1.0 Mc to 22.0 Mc in 1 minute.

Table 54

Leopoldville, Belgian Congo (4.4°S, 15.2°E) October 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 240 | 12.7 | | | | | | 2.56 |
| 01 | 245 | 12.0 | | | | | | 2.66 |
| 02 | 230 | 10.5 | | | | | | 2.74 |
| 03 | 220 | 8.7 | | | | | 1.6 | 2.89 |
| 04 | 215 | 5.8 | | | | | 1.9 | 2.91 |
| 05 | 240 | 7.4 | | | 130 | 2.1 | 2.9 | 2.84 |
| 06 | 235 | 9.7 | 235 | --- | 115 | 3.0 | 3.2 | 2.78 |
| 07 | 250 | 10.8 | 225 | --- | 110 | 3.5 | 4.0 | 2.50 |
| 08 | (295) | 12.0 | 220 | --- | 110 | 4.0 | | 2.34 |
| 09 | --- | 13.0 | 220 | --- | 110 | 4.1 | | 2.27 |
| 10 | 440 | >13.3 | 235 | --- | 110 | 4.1 | | 2.23 |
| 11 | 425 | >13.7 | 240 | --- | 110 | 4.2 | | 2.24 |
| 12 | 420 | 14.5 | 240 | --- | 105 | 4.1 | | 2.24 |
| 13 | 410 | 15.0 | 230 | --- | 110 | 4.0 | | 2.26 |
| 14 | 400 | 14.5 | 240 | --- | 110 | 3.6 | | 2.28 |
| 15 | 400 | 14.4 | 240 | --- | 110 | 3.2 | | <2.28 |
| 16 | 390 | >14.0 | 260 | --- | 115 | 2.5 | 3.0 | 2.26 |
| 17 | 310 | >13.2 | --- | --- | | | 2.4 | <2.45 |
| 18 | 370 | >13.3 | | | | | | <2.43 |
| 19 | 290 | >13.2 | | | | | | <2.79 |
| 20 | 240 | >14.0 | | | | | | <3.00 |
| 21 | 220 | >14.0 | | | | | | <3.15 |
| 22 | 215 | >13.5 | | | | | | <2.98 |
| 23 | 215 | 13.1 | | | | | | <2.50 |

Time: 0.0°.
Sweep: 1.0 Mc to 16.0 Mc in 7 seconds.

Table 55

Elisabethville, Belgian Congo (11.6°S, 27.5°E) October 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 250 | 8.6 | | | | | | 2.45 |
| 01 | 260 | 8.0 | | | | | | 2.57 |
| 02 | 250 | 7.4 | | | | | | 2.63 |
| 03 | 240 | 6.4 | | | | | | 2.71 |
| 04 | 245 | 7.9 | --- | --- | 140 | 1.8 | | 2.78 |
| 05 | 240 | 10.2 | 240 | --- | 110 | 2.0 | | 2.84 |
| 06 | 240 | 11.1 | 230 | --- | 110 | 3.4 | | 2.65 |
| 07 | (290) | 11.7 | 225 | --- | 110 | 3.8 | | 2.56 |
| 08 | --- | 12.0 | 220 | --- | 110 | 4.0 | | <2.42 |
| 09 | --- | 13.0 | 220 | --- | 110 | 4.0 | | 2.35 |
| 10 | (360) | 13.1 | 220 | --- | 110 | --- | | 2.31 |
| 11 | 390 | 13.2 | 240 | 5.0 | 110 | --- | | 2.29 |
| 12 | 380 | 13.5 | 240 | --- | 110 | 4.0 | | 2.27 |
| 13 | 375 | 13.6 | 245 | --- | 110 | 3.8 | | 2.30 |
| 14 | 355 | 13.3 | 245 | --- | 115 | 3.3 | 3.8 | 2.30 |
| 15 | (320) | 13.1 | 260 | --- | 115 | 2.7 | 3.6 | 2.32 |
| 16 | 280 | 13.2 | | | --- | --- | 3.0 | 2.37 |
| 17 | 290 | >13.4 | | | | | 2.4 | 2.39 |
| 18 | 280 | >13.4 | | | | | 1.7 | 2.50 |
| 19 | 250 | >13.6 | | | | | | 2.52 |
| 20 | 230 | 13.2 | | | | | | 2.61 |
| 21 | 235 | 11.9 | | | | | | 2.61 |
| 22 | 240 | 11.3 | | | | | | 2.65 |
| 23 | 230 | 9.3 | | | | | | 2.51 |

Time: 0.0°.
Sweep: 1.0 Mc to 16.0 Mc in 7 seconds.

Table 56

Rarotonga I. (21.2°S, 159.8°W) October 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 280 | (9.7) | | | | | | (2.95) |
| 01 | 270 | (9.5) | | | | | | (2.85) |
| 02 | 280 | (9.2) | | | | | | (2.7) |
| 03 | 300 | 9.0 | | | | | | 2.7 |
| 04 | 300 | 8.7 | | | | | | 2.7 |
| 05 | 300 | 9.1 | | | | | | 2.7 |
| 06 | 280 | (10.0) | --- | --- | --- | 1.8 | | (3.0) |
| 07 | 260 | (11.8) | 250 | 4.4 | 120 | 2.8 | | 3.05 |
| 08 | 260 | 12.7 | 250 | 5.2 | 115 | 3.4 | | 2.9 |
| 09 | 270 | 13.0 | 240 | 6.0 | 110 | 3.7 | | 2.8 |
| 10 | 290 | 13.7 | 230 | 6.6 | 110 | 4.0 | | 2.7 |
| 11 | 340 | 14.4 | 230 | 7.4 | 110 | 4.0 | | 2.7 |
| 12 | 350 | 14.7 | 220 | 7.4 | 110 | 4.0 | | 2.6 |
| 13 | 370 | 14.5 | 220 | 7.4 | 110 | 4.0 | | 2.6 |
| 14 | 380 | 14.2 | 240 | 7.4 | 110 | 4.0 | | 2.6 |
| 15 | 380 | 14.2 | 250 | 7.0 | 110 | 3.8 | | 2.6 |
| 16 | 360 | 13.8 | 260 | 6.7 | 115 | 3.4 | | 2.6 |
| 17 | 320 | 13.9 | 270 | 6.0 | 120 | 2.9 | | 2.7 |
| 18 | 300 | (13.2) | | | --- | --- | 3.5 | (2.7) |
| 19 | 310 | 13.4 | | | | | 2.2 | 2.7 |
| 20 | 310 | (12.5) | | | | | 2.8 | --- |
| 21 | 300 | (10.5) | | | | | 1.9 | (2.8) |
| 22 | 300 | (10.4) | | | | | | (2.8) |
| 23 | 300 | (9.8) | | | | | | --- |

Time: 157.5°W.
Sweep: 1.5 Mc to 20.0 Mc in 5 minutes, manual operation.

Table 57

Watheroo, W. Australia (30.3°S, 115.9°E) October 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 260 | 7.2 | | | | | | 2.7 |
| 01 | 260 | 7.0 | | | | | 2.4 | 2.6 |
| 02 | 250 | 6.8 | | | | | | 2.7 |
| 03 | 250 | 6.5 | | | | | | 2.7 |
| 04 | 260 | 6.4 | | | | | | 2.6 |
| 05 | 290 | 6.4 | | | | | | 2.7 |
| 06 | 250 | 7.2 | --- | --- | | 2.1 | | 2.9 |
| 07 | 230 | 8.2 | --- | --- | | 2.8 | 3.1 | 2.9 |
| 08 | 240 | 10.0 | 220 | 5.1 | | 3.3 | 3.6 | 3.0 |
| 09 | 260 | 11.2 | 210 | 5.6 | | 3.6 | 3.6 | 2.9 |
| 10 | 260 | 11.2 | 210 | 5.7 | | 3.8 | 4.0 | 2.8 |
| 11 | 260 | 11.9 | 210 | 5.8 | | 3.9 | | 2.8 |
| 12 | 300 | 12.0 | --- | 6.5 | | 4.0 | | 2.7 |
| 13 | 320 | 12.0 | 220 | 6.5 | | 3.8 | | 2.7 |
| 14 | 330 | 11.6 | 220 | 6.2 | | 3.8 | 3.9 | 2.7 |
| 15 | 330 | 11.6 | 220 | 6.2 | | 3.8 | | 2.7 |
| 16 | 270 | 11.3 | 230 | 5.6 | | 3.4 | | 2.7 |
| 17 | 250 | 10.9 | --- | --- | | 2.8 | 3.0 | 2.7 |
| 18 | 250 | 10.6 | | | | 2.0 | | 2.7 |
| 19 | 240 | 10.5 | | | | | | 2.7 |
| 20 | 240 | 9.5 | | | | | | 2.7 |
| 21 | 250 | 8.6 | | | | | | 2.7 |
| 22 | 260 | 8.1 | | | | | | 2.7 |
| 23 | 260 | 7.8 | | | | | | 2.6 |

Time: 120.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 45 seconds.

Table 58

Christchurch, New Zealand (43.6°S, 172.8°E) October 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 300 | 7.7 | | | | | <1.8 | 2.5 |
| 01 | 300 | 7.6 | | | | | <1.8 | 2.5 |
| 02 | 300 | 7.0 | | | | | <1.8 | 2.5 |
| 03 | 290 | 6.5 | | | | | <1.7 | 2.5 |
| 04 | 300 | 6.5 | | | | | <1.6 | 2.4 |
| 05 | 300 | 6.4 | | | | (1.4) | | 2.6 |
| 06 | 260 | 7.0 | --- | --- | | (2.3) | | 2.75 |
| 07 | 250 | 8.2 | 250 | --- | | 3.0 | | 2.8 |
| 08 | 240 | 9.0 | 240 | --- | | 3.3 | | 2.8 |
| 09 | (300) | 9.8 | 230 | 5.2 | | 3.6 | | 2.8 |
| 10 | (290) | 10.2 | 220 | --- | | 3.9 | | 2.8 |
| 11 | (280) | 10.7 | 210 | --- | | 4.0 | | 2.7 |
| 12 | (310) | 10.6 | 210 | 5.7 | | 4.0 | | 2.7 |
| 13 | (290) | 10.6 | 230 | 5.9 | | 3.9 | | 2.7 |
| 14 | (240) | 10.3 | 230 | --- | | 3.8 | | 2.6 |
| 15 | 240 | 10.1 | 240 | --- | | 3.5 | | 2.6 |
| 16 | 250 | 10.0 | 250 | --- | | 3.1 | | 2.7 |
| 17 | 250 | 10.1 | --- | --- | | 2.7 | | 2.65 |
| 18 | 260 | 9.8 | | | | (2.0) | | 2.7 |
| 19 | 250 | 9.6 | | | | | | 2.7 |
| 20 | 260 | 9.5 | | | | | <1.7 | 2.6 |
| 21 | 290 | 8.8 | | | | | <1.8 | 2.6 |
| 22 | 300 | 8.2 | | | | | <1.8 | 2.5 |
| 23 | 300 | 8.0 | | | | | <1.8 | 2.5 |

Time: 172.5°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 59

Townsville, Australia (19.3°S, 146.7°E) September 1956

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | >7.5 | 240 | | | | | ---- |
| 01 | | >6.8 | 230 | | | | | ---- |
| 02 | | >6.2 | 220 | | | | | ---- |
| 03 | | 5.8 | 270 | | | | | (2.70) |
| 04 | | >5.5 | 280 | | | | | ---- |
| 05 | | >5.5 | 290 | | | | | ---- |
| 06 | | >5.8 | 280 | | | 1.8 | | ---- |
| 07 | | >9.5 | 240 | | | 2.6 | | ---- |
| 08 | --- | (12.4) | 230 | | | 3.2 | 3.5 | (3.15) |
| 09 | (255) | 13.1 | 220 | | | 3.6 | | 3.10 |
| 10 | (255) | >13.5 | 215 | --- | | 3.8 | | 3.05 |
| 11 | (260) | 13.0 | 210 | --- | | --- | (5.4) | 2.90 |
| 12 | (255) | 12.6 | 210 | --- | | --- | (5.6) | 2.80 |
| 13 | (325) | 12.0 | 205 | 6.5 | | (4.0) | (5.4) | 2.75 |
| 14 | (360) | >11.8 | 220 | --- | | >3.7 | 4.6 | 2.70 |
| 15 | --- | 11.7 | 220 | --- | | 3.6 | 4.0 | 2.70 |
| 16 | --- | >10.5 | 235 | | | 3.4 | 3.4 | ---- |
| 17 | --- | >10.0 | 250 | | | 2.8 | 4.1 | |
| 18 | | >9.0 | 260 | | | 1.8 | 3.0 | |
| 19 | | --- | 260 | | | | 2.1 | |
| 20 | | --- | 260 | | | | | |
| 21 | | >6.4 | 255 | | | | 1.8 | |
| 22 | | >8.4 | 270 | | | | | |
| 23 | | >8.4 | 250 | | | | | |

Time: 150.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 60

Brisbane, Australia (27.5°S, 153.0°E) September 1956

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 8.0 | 260 | | | | | 2.65 |
| 01 | | 7.5 | 250 | | | | | 2.75 |
| 02 | | 6.7 | 250 | | | | | 2.65 |
| 03 | | 6.0 | 265 | | | | | 2.55 |
| 04 | | 6.0 | 290 | | | | | 2.55 |
| 05 | | 6.0 | 285 | | | E | | 2.60 |
| 06 | | 7.2 | 250 | | | 1.9 | | 2.90 |
| 07 | | 10.4 | 240 | | | 2.8 | | 3.00 |
| 08 | | 11.4 | 230 | | | 3.3 | | 2.95 |
| 09 | (260) | 12.0 | 230 | --- | | 3.6 | | 2.90 |
| 10 | (260) | 12.1 | 225 | 5.0 | | <3.9 | 3.9 | 2.85 |
| 11 | 280 | 12.1 | 220 | 5.0 | | 3.8 | 4.0 | 2.80 |
| 12 | 320 | 12.0 | 220 | 5.9 | | (3.9) | 4.2 | 2.70 |
| 13 | (320) | 11.1 | 220 | 5.6 | | 3.8 | 3.8 | 2.70 |
| 14 | --- | 11.0 | 230 | --- | | (3.7) | 4.2 | 2.70 |
| 15 | --- | 10.8 | 230 | --- | | 3.4 | | 2.65 |
| 16 | --- | 10.6 | 250 | --- | | 3.0 | | 2.70 |
| 17 | | 10.8 | 250 | | | --- | 2.3 | 2.75 |
| 18 | | 10.0 | 240 | | | E | | 2.75 |
| 19 | | 9.1 | 255 | | | --- | | 2.70 |
| 20 | | 9.0 | 260 | | | | | 2.70 |
| 21 | | 8.8 | <280 | | | | | 2.70 |
| 22 | | 8.6 | 270 | | | | | 2.70 |
| 23 | | 8.4 | 260 | | | | | 2.70 |

Time: 150.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 61

Canberra, Australia (35.3°S, 149.0°E) September 1956

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | foEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 7.2 | <270 | | | | | (2.70) |
| 01 | | (7.0) | <250 | | | | | (2.80) |
| 02 | | (6.7) | 240 | | | | (1.6) | (2.60) |
| 03 | | 6.0 | <240 | | | | 1.4 | 2.60 |
| 04 | | 6.0 | <280 | | | | | 2.60 |
| 05 | | 5.9 | 250 | | | | | 2.60 |
| 06 | | 6.8 | 260 | | | 1.85 | | (3.00) |
| 07 | --- | 8.5 | 240 | | | 2.60 | | 3.10 |
| 08 | 250 | 10.0 | 230 | | | 3.10 | | 3.10 |
| 09 | 250 | 10.9 | 220 | (5.0) | | 3.50 | | 3.00 |
| 10 | 250 | 11.1 | 220 | (5.0) | | 3.70 | | 2.90 |
| 11 | 260 | 12.2 | 210 | (5.0) | | 3.80 | | 2.90 |
| 12 | 270 | 12.1 | 200 | (5.0) | | 3.90 | | 2.85 |
| 13 | 260 | 11.9 | 210 | (4.9) | | 3.80 | | 2.70 |
| 14 | (250) | 11.2 | 220 | --- | | 3.80 | | 2.75 |
| 15 | (250) | 11.0 | 220 | --- | | 3.50 | | 2.70 |
| 16 | (250) | 10.9 | 230 | | | 3.20 | | 2.80 |
| 17 | --- | 10.5 | 240 | | | 2.50 | | 2.85 |
| 18 | | >10.0 | 240 | | | 1.70 | | (2.90) |
| 19 | | >9.0 | <240 | | | | | 2.75 |
| 20 | | >8.5 | <240 | | | | | ---- |
| 21 | | (7.5) | <250 | | | | | ---- |
| 22 | | 7.5 | <250 | | | | | (2.80) |
| 23 | | >7.0 | <260 | | | | | (2.70) |

Time: 150.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 62

Hobart, Tasmania (42.9°S, 147.2°E) September 1956

| Time | h'F2 | foF2 | h'F | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | | 6.2 | 300 | | | | | 2.6 |
| 01 | | 6.0 | 300 | | | | | 2.6 |
| 02 | | 5.5 | 300 | | | | | 2.5 |
| 03 | | 4.8 | 300 | | | | | 2.6 |
| 04 | | 4.0 | 300 | | | | | 2.6 |
| 05 | | 4.0 | 300 | | | | | 2.5 |
| 06 | | 4.5 | 270 | | | <2.0 | | 2.7 |
| 07 | | 7.0 | 250 | | | 2.3 | | 3.1 |
| 08 | | 8.5 | 230 | | | 2.9 | | 3.1 |
| 09 | | 9.5 | 230 | | | 3.3 | | 3.0 |
| 10 | --- | 10.2 | 220 | --- | | 3.5 | | 3.0 |
| 11 | --- | 11.0 | 220 | --- | | 3.5 | | 3.0 |
| 12 | --- | 12.0 | 220 | --- | | 3.6 | | 2.9 |
| 13 | --- | 11.6 | 230 | --- | | 3.6 | | 2.9 |
| 14 | | 11.5 | 230 | | | 3.5 | | 2.8 |
| 15 | | 11.0 | 230 | | | 3.3 | | 2.9 |
| 16 | | 10.6 | 240 | | | 3.0 | | 2.9 |
| 17 | | 10.6 | 240 | | | 2.5 | | 2.9 |
| 18 | | 10.3 | 240 | | | 1.8 | | 2.9 |
| 19 | | 9.0 | 250 | | | | | 2.8 |
| 20 | | 8.0 | 250 | | | | | 2.8 |
| 21 | | 7.4 | 270 | | | | | 2.7 |
| 22 | | 6.5 | 280 | | | | | 2.6 |
| 23 | | 6.5 | 300 | | | | | 2.6 |

Time: 150.0°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 63

Townsville, Australia (19.3°S, 146.7°E) June 1956*

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 250 | 4.0 | | | | | 1.8 | (3.0) |
| 01 | 250 | 3.6 | | | | | 1.8 | 3.05 |
| 02 | 250 | 3.6 | | | | | 2.1 | (3.2) |
| 03 | 245 | 3.8 | | | | | 2.3 | (3.0) |
| 04 | 240 | 3.4 | | | | | 2.1 | 3.0 |
| 05 | 260 | 3.6 | | | | | 2.3 | 2.95 |
| 06 | 240 | 3.7 | | | | | 2.4 | 3.2 |
| 07 | 225 | 6.7 | | | | 2.0 | 2.9 | 3.4 |
| 08 | 230 | >8.4 | 210 | --- | | 2.7 | | (3.4) |
| 09 | 250 | 10.4 | 220 | --- | | 3.1 | 3.7 | 3.3 |
| 10 | 250 | 10.5 | 220 | 4.8 | | 3.4 | 6.0 | 3.3 |
| 11 | (250) | 10.2 | 210 | (5.0) | | 3.5 | 6.3 | 3.2 |
| 12 | 260 | (10.1) | 210 | 5.2 | | 3.7 | 5.5 | (3.15) |
| 13 | 260 | (10.1) | 200 | (5.3) | | 3.6 | 5.7 | (3.1) |
| 14 | (275) | 9.9 | --- | 5.0 | | 3.5 | 4.9 | (3.1) |
| 15 | (250) | 10.0 | 230 | --- | | 3.2 | 4.1 | 3.1 |
| 16 | (250) | (10.0) | 230 | --- | | 2.9 | 3.7 | --- |
| 17 | 240 | >9.5 | | | | 2.3 | 3.7 | (3.1) |
| 18 | 225 | (7.6) | | | | --- | 3.8 | --- |
| 19 | 220 | 6.7 | | | | | 3.5 | 3.2 |
| 20 | 230 | 5.6 | | | | | 2.8 | 3.0 |
| 21 | 240 | 5.1 | | | | | | 3.0 |
| 22 | 250 | 5.0 | | | | | 2.0 | (3.0) |
| 23 | 250 | (5.0) | | | | | | (3.1) |

Time: 150.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.
*Data observed only from June 1 to 18, inclusive.

Table 64

Brisbane, Australia (27.5°S, 153.0°E) June 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 260 | 4.0 | | | | | | 2.8 |
| 01 | 270 | 4.2 | | | | | | 2.8 |
| 02 | 260 | 4.1 | | | | | 2.2 | 2.8 |
| 03 | 260 | 4.3 | | | | | 2.0 | 2.8 |
| 04 | 260 | 4.1 | | | | | 2.0 | 2.9 |
| 05 | 250 | 4.0 | | | | | 2.0 | 2.8 |
| 06 | 240 | 4.0 | | | | | 1.9 | 2.9 |
| 07 | 230 | 7.0 | | | | 1.8 | | 3.35 |
| 08 | 230 | 8.6 | --- | --- | | 2.6 | | 3.3 |
| 09 | 240 | 9.6 | 220 | --- | | 3.0 | 4.0 | 3.2 |
| 10 | (250) | 10.1 | 220 | 4.6 | | 3.3 | 4.0 | 3.2 |
| 11 | (250) | 9.5 | 210 | 4.6 | | 3.5 | 4.5 | 3.1 |
| 12 | (250) | 9.4 | 210 | 4.6 | | 3.5 | 4.6 | 3.15 |
| 13 | 260 | 9.6 | 220 | 4.5 | | 3.5 | 4.5 | 3.05 |
| 14 | (255) | 9.6 | 210 | 4.0 | | 3.3 | 4.5 | 3.1 |
| 15 | 240 | 9.6 | 220 | --- | | 3.0 | 4.2 | 3.0 |
| 16 | 240 | 9.3 | --- | --- | | 2.5 | 4.0 | 3.1 |
| 17 | 230 | 8.5 | | | | E | 4.0 | 3.15 |
| 18 | 230 | 7.4 | | | | | 4.0 | 3.0 |
| 19 | 240 | 6.0 | | | | | 3.0 | 2.9 |
| 20 | 240 | 5.0 | | | | | 2.2 | 2.9 |
| 21 | 250 | 4.9 | | | | | | 2.8 |
| 22 | 250 | 4.7 | | | | | | 2.9 |
| 23 | 250 | 4.2 | | | | | | 2.8 |

Time: 150.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 65

Canberra, Australia (35.3°S, 149.0°E) June 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | --- | 3.6 | | | | | 2.1 | 2.8 |
| 01 | --- | 3.9 | | | | | 1.6 | 2.8 |
| 02 | --- | 3.9 | | | | | | 2.8 |
| 03 | --- | 4.0 | | | | | | 2.8 |
| 04 | <250 | 4.3 | | | | | | 2.9 |
| 05 | --- | 3.6 | | | | | | 3.05 |
| 06 | --- | 3.5 | | | | | | 3.05 |
| 07 | 240 | 4.7 | | | | (1.8) | | 3.15 |
| 08 | 220 | 7.4 | --- | --- | | 2.2 | | 3.5 |
| 09 | 240 | 8.4 | 230 | --- | | 2.8 | | 3.45 |
| 10 | 240 | (8.5) | 230 | --- | | 3.1 | | (3.4) |
| 11 | 250 | (8.6) | 220 | (4.5) | | 3.3 | | (3.4) |
| 12 | 250 | 8.6 | 225 | (4.5) | | 3.3 | 3.6 | 3.4 |
| 13 | 250 | (8.5) | 220 | (4.6) | | 3.3 | | (3.35) |
| 14 | 250 | (8.6) | 220 | --- | | 3.1 | 3.5 | (3.3) |
| 15 | 240 | (8.6) | 230 | --- | | 2.9 | 3.6 | (3.35) |
| 16 | 230 | 8.6 | --- | --- | | 2.4 | 3.2 | 3.3 |
| 17 | 230 | 8.4 | | | | (1.7) | 2.0 | 3.2 |
| 18 | 210 | 7.4 | | | | | 3.0 | 3.1 |
| 19 | (220) | 6.5 | | | | | | 3.2 |
| 20 | (220) | 5.1 | | | | | | 3.0 |
| 21 | --- | 4.0 | | | | | | 2.95 |
| 22 | --- | (4.1) | | | | | | 2.85 |
| 23 | --- | 3.9 | | | | | | 2.8 |

Time: 150.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 66

Hobart, Tasmania (42.9°S, 147.2°E) June 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 290 | 3.3 | | | | | | 2.6 |
| 01 | 300 | 3.2 | | | | | | 2.65 |
| 02 | 300 | 3.3 | | | | | | 2.6 |
| 03 | 300 | 3.2 | | | | | | 2.6 |
| 04 | 280 | 3.2 | | | | | | 2.7 |
| 05 | 250 | 3.0 | | | | | | 2.9 |
| 06 | 250 | 2.7 | | | | | | 2.8 |
| 07 | 250 | 3.0 | | | | E | | 2.85 |
| 08 | 230 | 6.0 | | | | 1.9 | | 3.3 |
| 09 | 230 | 8.5 | | | | 2.5 | | 3.3 |
| 10 | 230 | 9.5 | | | | 2.8 | | 3.2 |
| 11 | 230 | 10.2 | | | | 3.0 | | 3.2 |
| 12 | 230 | 10.5 | | | | 3.0 | | 3.1 |
| 13 | 230 | 11.0 | | | | 3.0 | | 3.1 |
| 14 | 240 | 11.1 | | | | 2.8 | | 3.1 |
| 15 | 230 | 10.7 | | | | 2.6 | | 3.1 |
| 16 | 230 | 10.0 | | | | 2.0 | | 3.1 |
| 17 | 230 | 9.0 | | | | E | | 3.0 |
| 18 | 230 | 7.4 | | | | | | 3.0 |
| 19 | 240 | 6.0 | | | | | | 3.0 |
| 20 | 250 | 4.6 | | | | | | 2.9 |
| 21 | 250 | 3.9 | | | | | | 2.9 |
| 22 | 270 | 3.5 | | | | | | 2.7 |
| 23 | 280 | 3.4 | | | | | | 2.7 |

Time: 150.0°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 67

Lulea, Sweden (65.6°N, 22.1°E) — April 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 315 | --- | | | | | 2.4 | |
| 01 | 320 | --- | | | | | 2.5 | |
| 02 | 330 | --- | | | | | 2.3 | |
| 03 | 325 | --- | | | --- | --- | | |
| 04 | 310 | (4.8) | | | --- | 1.7 | 1.8 | |
| 05 | 260 | 5.5 | --- | --- | 120 | 2.0 | | |
| 06 | 250 | 5.6 | --- | --- | 110 | 2.5 | | |
| 07 | 250 | 6.0 | --- | 4.4 | 110 | 2.7 | | ---- |
| 08 | (235) | 6.8 | 230 | 4.6 | 100 | 3.0 | | (2.85) |
| 09 | (250) | 7.1 | 230 | 4.8 | 100 | 3.5 | | ---- |
| 10 | (350) | 7.4 | 210 | 4.7 | 100 | --- | | ---- |
| 11 | (400) | 7.5 | 225 | 5.0 | 100 | --- | | ---- |
| 12 | (440) | 8.0 | 215 | 5.0 | 100 | 3.5 | | (2.95) |
| 13 | (400) | 7.8 | --- | 4.7 | 100 | --- | | ---- |
| 14 | (235) | 7.4 | --- | 4.5 | 100 | --- | | ---- |
| 15 | (240) | 7.2 | --- | 4.4 | 100 | --- | | ---- |
| 16 | (240) | 7.3 | --- | --- | 110 | 2.6 | | ---- |
| 17 | 250 | 6.6 | --- | --- | 110 | 2.5 | | |
| 18 | 250 | (5.8) | | | 120 | 2.2 | | |
| 19 | 260 | (5.3) | | | --- | 1.8 | | |
| 20 | 260 | (5.5) | | | --- | 1.6 | | |
| 21 | 285 | --- | | | | | | |
| 22 | 300 | --- | | | | | 1.9 | |
| 23 | 310 | --- | | | | | 2.3 | |

Time: 15.0°E.
Sweep: 1.5 Mc to 10.0 Mc in 6 minutes, automatic operation.

Table 68

Rarotonga I. (21.2°S, 159.8°W) — April 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 270 | (9.2) | | | | | | (2.8) |
| 01 | 250 | (8.8) | | | | | | (2.9) |
| 02 | 250 | 7.4 | | | | | | 2.9 |
| 03 | 250 | 6.3 | | | | | | 2.8 |
| 04 | 270 | 6.0 | | | | | | 2.75 |
| 05 | 270 | 5.7 | | | | | | 2.9 |
| 06 | 280 | 6.2 | | | --- | E | 2.0 | 2.9 |
| 07 | 250 | 9.5 | 250 | 4.0 | 130 | 2.0 | 2.7 | 3.0 |
| 08 | 250 | 12.5 | 250 | 4.4 | 115 | 2.8 | | 3.2 |
| 09 | 260 | 14.2 | 240 | 5.5 | 110 | 3.4 | | 3.1 |
| 10 | 270 | 14.5 | 240 | 6.2 | 110 | 3.5 | | 3.0 |
| 11 | 280 | 14.6 | 220 | 6.5 | 110 | 3.8 | | 3.0 |
| 12 | 300 | 15.0 | 230 | 7.0 | 110 | 3.8 | 4.0 | 2.9 |
| 13 | 310 | 14.8 | 240 | 7.1 | 110 | 3.8 | 5.0 | 2.8 |
| 14 | 320 | 15.1 | 250 | 7.2 | 110 | 3.8 | 5.2 | 2.85 |
| 15 | 310 | 14.6 | 250 | 7.0 | 110 | 3.5 | 4.9 | 2.8 |
| 16 | 320 | 14.2 | 250 | 6.9 | 110 | 3.2 | 5.0 | 2.8 |
| 17 | 280 | 14.5 | 260 | 5.5 | --- | 2.6 | 4.1 | 2.9 |
| 18 | 270 | 13.7 | | | | | 3.9 | (2.9) |
| 19 | 260 | 13.0 | | | | | 3.4 | (2.75) |
| 20 | 250 | 12.6 | | | | | 2.5 | (2.9) |
| 21 | 260 | 12.1 | | | | | 2.0 | (2.8) |
| 22 | 260 | 9.9 | | | | | | (2.8) |
| 23 | 260 | 9.8 | | | | | | (2.8) |

Time: 157.5°W.
Sweep: 1.5 Mc to 20.0 Mc in 5 minutes, manual operation.

Table 69

Townsville, Australia (19.3°S, 146.7°E) — March 1956*

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 280 | >6.4 | | | | | 2.1 | --- |
| 01 | 260 | >6.9 | | | | | 2.1 | --- |
| 02 | 250 | >7.0 | | | | | 2.1 | (3.0) |
| 03 | 250 | >6.0 | | | | | 2.1 | (2.8) |
| 04 | 265 | >5.8 | | | | | 2.1 | (2.8) |
| 05 | 285 | >5.5 | | | | | | 2.85 |
| 06 | 280 | >5.7 | | | | --- | | (2.9) |
| 07 | 250 | >7.9 | | | | 2.2 | | --- |
| 08 | 240 | >8.4 | 230 | --- | | 3.0 | 3.8 | (3.2) |
| 09 | (270) | >9.5 | 225 | --- | | 3.5 | 3.8 | --- |
| 10 | 280 | >9.7 | 210 | 5.3 | | 3.6 | 4.2 | --- |
| 11 | 295 | >11.3 | 205 | 5.5 | | 3.8 | | --- |
| 12 | 290 | >11.9 | 220 | 5.5 | | 3.9 | | --- |
| 13 | (310) | 12.5 | 225 | 5.2 | | 3.9 | | (2.8) |
| 14 | (320) | >12.4 | 205 | 5.6 | | 3.8 | | --- |
| 15 | (290) | >12.0 | 225 | 5.2 | | 3.7 | 4.2 | --- |
| 16 | (280) | >8.4 | 240 | --- | | 3.3 | 4.0 | |
| 17 | 250 | >8.4 | 250 | --- | | 2.9 | 4.5 | |
| 18 | 250 | >7.5 | | | | 2.1 | 4.0 | |
| 19 | 250 | >7.0 | | | | | 3.3 | |
| 20 | 270 | >6.0 | | | | | 2.8 | |
| 21 | 275 | >6.3 | | | | | 2.1 | --- |
| 22 | 290 | >6.2 | | | | | 2.1 | --- |
| 23 | 300 | >6.0 | | | | | 3.0 | |

Time: 150.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.
*Data observed from March 1 to 25, inclusive.

Table 70

Brisbane, Australia (27.5°S, 153.0°E) — March 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 280 | 7.4 | | | | | | 2.75 |
| 01 | 260 | 7.4 | | | | | | 2.75 |
| 02 | 260 | 7.0 | | | | | 2.6 | 2.8 |
| 03 | 260 | 6.5 | | | | | | 2.7 |
| 04 | 270 | 6.0 | | | | | | 2.7 |
| 05 | 270 | 5.6 | | | | | | 2.7 |
| 06 | 250 | 6.5 | | | | E | | 2.9 |
| 07 | 240 | 8.5 | | | | 2.6 | 3.6 | 3.0 |
| 08 | 240 | 10.6 | 220 | --- | | 3.1 | 4.3 | 3.0 |
| 09 | (280) | 11.0 | 220 | 5.0 | | 3.4 | 4.7 | 2.9 |
| 10 | (270) | 12.0 | 210 | 5.0 | | 3.6 | 4.8 | 2.8 |
| 11 | 290 | 12.4 | 210 | 5.0 | | 3.7 | 4.8 | 2.8 |
| 12 | 280 | 12.4 | 210 | 5.2 | | 3.8 | 4.7 | 2.8 |
| 13 | 285 | 12.6 | 220 | 4.9 | | 3.9 | 4.3 | 2.7 |
| 14 | (310) | 12.2 | 225 | 5.1 | | 3.8 | 4.2 | 2.8 |
| 15 | --- | 12.0 | 230 | --- | | 3.5 | | 2.8 |
| 16 | 240 | 11.6 | 235 | --- | | 3.2 | 3.6 | 2.8 |
| 17 | 250 | 10.9 | --- | --- | | (2.6) | 3.8 | 2.8 |
| 18 | 240 | 10.0 | | | | E | 3.5 | 2.8 |
| 19 | 250 | 9.0 | | | | | 3.0 | 2.8 |
| 20 | 260 | 8.4 | | | | | | 2.7 |
| 21 | 285 | 8.0 | | | | | 2.5 | 2.7 |
| 22 | 280 | 7.8 | | | | | 2.8 | 2.7 |
| 23 | 280 | 7.8 | | | | | | 2.7 |

Time: 150.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 71

Canberra, Australia (35.3°S, 149.0°E) — March 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | --- | (6.6) | | | | | 2.8 | (2.7) |
| 01 | <260 | 6.5 | | | | | 2.9 | 2.7 |
| 02 | --- | 6.3 | | | | | 2.9 | 2.7 |
| 03 | --- | 5.9 | | | | | 2.9 | 2.7 |
| 04 | --- | 5.0 | | | | | 2.4 | 2.7 |
| 05 | --- | 4.9 | | | | | 2.2 | 2.7 |
| 06 | 260 | 4.9 | | | | 1.8 | | 3.0 |
| 07 | 240 | 7.3 | 240 | --- | | 2.4 | | 3.15 |
| 08 | 250 | 8.5 | 230 | (4.5) | | 3.0 | 3.4 | 3.2 |
| 09 | 260 | 8.8 | 220 | 4.5 | | 3.3 | 3.6 | 3.1 |
| 10 | 260 | 10.5 | 210 | 4.9 | | 3.4 | 3.6 | 3.1 |
| 11 | 280 | >11.0 | 210 | (5.0) | | 3.6 | 4.0 | 3.0 |
| 12 | 280 | 11.2 | 200 | 5.0 | | 3.7 | 3.7 | 2.9 |
| 13 | 300 | 11.3 | 220 | (5.3) | | 3.7 | | 2.9 |
| 14 | (300) | 11.0 | 220 | --- | | 3.6 | 3.6 | 2.9 |
| 15 | 250 | 10.6 | 220 | (4.9) | | 3.5 | 3.6 | 2.9 |
| 16 | 260 | 9.0 | 230 | --- | | 3.1 | 3.6 | 3.05 |
| 17 | 250 | (9.0) | 240 | --- | | 2.7 | 3.6 | (3.0) |
| 18 | 240 | 8.6 | --- | --- | | 2.2 | 3.3 | 3.0 |
| 19 | 240 | 8.3 | | | | | 3.1 | 2.9 |
| 20 | (240) | 7.4 | | | | | 2.5 | 2.8 |
| 21 | --- | 7.0 | | | | | 1.0 | 2.7 |
| 22 | --- | 6.7 | | | | | | 2.7 |
| 23 | --- | 6.6 | | | | | 2.7 | 2.65 |

Time: 150.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 72

Hobart, Tasmania (42.9°S, 147.2°E) — March 1956

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|---|---|---|---|---|---|---|---|---|
| 00 | 280 | 6.0 | | | | | | 2.8 |
| 01 | 300 | 5.4 | | | | | | 2.7 |
| 02 | 300 | 5.5 | | | | | | 2.7 |
| 03 | 300 | 5.0 | | | | | | 2.7 |
| 04 | 300 | 4.5 | | | | | | 2.7 |
| 05 | 300 | 3.5 | | | | | | 2.7 |
| 06 | 280 | 4.0 | | | | 1.5 | | 2.9 |
| 07 | 250 | 6.0 | | | | 2.3 | | 3.1 |
| 08 | 240 | 7.3 | | | | 2.8 | | 3.1 |
| 09 | 230 | 8.0 | --- | --- | | 3.1 | | 3.1 |
| 10 | 240 | 8.8 | 240 | 4.7 | | 3.4 | | 3.0 |
| 11 | 220 | 9.7 | 220 | 4.8 | | 3.5 | | 3.0 |
| 12 | 230 | 9.2 | 250 | 4.0 | | 3.5 | | 3.0 |
| 13 | 230 | 9.8 | 230 | 4.7 | | 3.5 | | 3.0 |
| 14 | 240 | 9.9 | --- | --- | | 3.5 | | 3.0 |
| 15 | 240 | 9.8 | --- | --- | | 3.4 | | 3.0 |
| 16 | 240 | 9.7 | | | | 3.1 | | 3.0 |
| 17 | 250 | 9.4 | | | | 2.7 | | 3.1 |
| 18 | 250 | 9.3 | | | | 2.2 | | 3.0 |
| 19 | 250 | 8.6 | | | | E | | 3.0 |
| 20 | 250 | 7.5 | | | | | | 2.9 |
| 21 | 260 | 7.0 | | | | | | 2.9 |
| 22 | 270 | 6.5 | | | | | | 2.8 |
| 23 | 200 | 6.0 | | | | | | 2.7 |

Time: 150.0°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

# TABLE 73
# IONOSPHERIC DATA

foF2, 0.1 Mc, April 1957
Station WASHINGTON Lat. 38.7N Long. 77.1W Sweep 1.0 Mc to 25.0 Mc in 13.5 Sec. 75.0W Manual ☐ Mean Time Automatic ☒

| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | 62 | U F 50 | J S 49 | U F 44 | U F 43 | U F 43 | F 64 | C | 94 | 96 | 100 | 115 | 118 | 119 | 122 | 120 | 115 | 116 | U S 103 | 92 | 78 | 74 | 70 | 70 |
| 02 | U F 63 | U F 53 | 48 | F 38 | U F 35 | U F 35 | 52 | 69 | 73 | 82 | 91 | 97 | 100 | 105 | 103 | 100 | 102 | 100 | 94 | 94 | 84 | 82 | 83 | 82 |
| 03 | U F 76 | U F 62 | U F 61 | U F 54 | 47 | 47 | 59 | 74 | 82 | 101 | 105 | 115 | 119 | 117 | 118 | 115 | 118 | 120 | 113 | 103 | 86 | 90 | 84 | U F 62 |
| 04 | U F 62 | U F 60 | U F 58 | F 58 | U F 50 | F 51 | 65 | 91 | 104 | U R 105 | 112 | 117 | 120 | 120 | 122 | 120 | 115 | 115 | 116 | 102 | 90 | 80 | 72 | 67 |
| 05 | 65 | 66 | F 60 | 55 | U F 52 | U F 42 | U F 49 | C | C | C | C | C | C | C | C | C | C | C | 101 | 92 | 81 | 78 | F 67 | F 56 |
| 06 | U F 56 | F 48 | U F 46 | U F 36 | F 43 | U F 35 | U F 45 | F 52 | 60 | 66 | 70 | 74 | 77 | 80 | 86 | 86 | 85 | 83 | 80 | 76 | 72 | 72 | U S 70 | U F 66 |
| 07 | F 66 | F 64 | U F 60 | F 56 | F 50 | F 47 | 58 | 78 | 88 | 91 | 97 | 107 | 110 | 109 | 109 | 110 | 109 | 106 | 103 | 100 | 84 | 84 | 83 | U S 79 |
| 08 | 82 | 74 | 64 | 62 | 65 | 63 | 66 | 71 | 71 | 72 | 77 | 82 | 86 | 86 | 85 | 84 | 82 | 80 | 80 | 84 | 77 | 72 | 65 | 67 |
| 09 | 61 | 60 | 61 | 57 | 55 | 55 | 60 | I C 64 | 68 | 67 | 70 | 73 | 80 | 85 | 86 | 83 | 85 | 83 | 90 | 86 | 86 | 72 | 68 | 65 |
| 10 | U F 38 | U F 47 | U F 47 | U F 43 | U F 31 | F 32 | 41 | 44 | H 50 | 59 | 63 | 66 | 69 | 71 | 76 | 81 | 83 | 79 | 82 | F 75 | 68 | 65 | 63 | 58 |
| 11 | 59 | 58 | U F 58 | F 52 | F 49 | 48 | 63 | 74 | 79 | H 76 | 76 | 81 | 88 | 93 | 94 | 97 | 98 | 100 | 99 | 95 | 81 | 73 | 70 | 69 |
| 12 | 69 | 66 | 61 | 57 | 57 | F 55 | 63 | 77 | 86 | 97 | 102 | 108 | 107 | 107 | 109 | I C 111 | 111 | 106 | 104 | 100 | 89 | 85 | 82 | 80 |
| 13 | 79 | 71 | 68 | 65 | 60 | 62 | 83 | 98 | 107 | 109 | 113 | 120 | 124 | 120 | 117 | 115 | 112 | 106 | 105 | 106 | U S 96 | 89 | 82 | 76 |
| 14 | F 73 | 71 | F 69 | F 65 | F 59 | F 56 | 70 | 84 | 94 | 101 | 112 | 113 | 115 | 117 | 117 | 110 | 108 | 107 | 105 | 100 | 92 | 87 | 82 | 82 |
| 15 | 79 | 74 | F 72 | F 68 | F 70 | 67 | 71 | 82 | 95 | 100 | 113 | 117 | 118 | 117 | 117 | 112 | 108 | 105 | 111 | U S 113 | 107 | 103 | 92 | 84 |
| 16 | 90 | 87 | 76 | 70 | 71 | 63 | 64 | 77 | 87 | 95 | 100 | U S 103 | 108 | 107 | 108 | 104 | 99 | 90 | 88 | 84 | 79 | U S 78 | 73 | 71 |
| 17 | 67 | 62 | 59 | 61 | 62 | 56 | 58 | 65 | 67 | 68 | 70 | 75 | 77 | 74 | 75 | 74 | 74 | 75 | 77 | 80 | 78 | 66 | F 66 | 60 |
| 18 | 60 | 50 | 47 | 44 | 42 | 39 | 45 | 52 | 67 | 80 | J R 94 | 102 | 102 | 103 | 102 | 109 | 107 | 107 | 107 | U S 100 | 92 | 80 | 74 | J S 62 |
| 19 | U S 39 | F 41 | U F 33 | U S 30 | F 28 | 31 | 44 | 50 | H 58 | 60 | 64 | 68 | 73 | 73 | 76 | I A 76 | 76 | 76 | 76 | 78 | 70 | 64 | 57 | 58 |
| 20 | F 56 | F 55 | U S 52 | U F 35 | U F 34 | F 37 | 54 | 62 | 63 | 68 | 70 | 74 | 77 | 80 | 83 | 84 | 85 | 84 | 86 | 83 | 80 | 77 | U S 78 | 80 |
| 21 | 75 | 67 | 63 | J F 65 | F 64 | 57 | 62 | 68 | 68 | 69 | 70 | 72 | 76 | 74 | 74 | 74 | 72 | 70 | 70 | 70 | 71 | 67 | 63 | 61 |
| 22 | F 60 | F 59 | F 60 | F 55 | U F 51 | F 51 | F 72 | 81 | 86 | 90 | 93 | 95 | 99 | 98 | 100 | 102 | 102 | 99 | 97 | 94 | 89 | 80 | 80 | 75 |
| 23 | 75 | 72 | F 72 | F 70 | F 66 | F 63 | F 70 | 83 | 96 | 102 | 102 | 102 | 103 | 102 | 102 | 99 | 96 | 95 | 99 | 98 | 92 | 84 | 78 | 76 |
| 24 | 76 | 75 | 71 | 65 | 59 | 56 | 70 | 79 | 81 | 75 | 70 | 70 | 69 | 74 | 76 | 75 | 76 | 76 | 76 | 76 | 76 | 76 | 74 | 67 |
| 25 | 60 | 57 | 57 | F 54 | 52 | F 53 | 66 | 74 | 77 | 86 | 92 | 92 | 97 | 100 | 98 | 95 | 92 | 94 | 93 | 94 | 87 | U S 80 | 74 | 70 |
| 26 | 68 | 67 | 60 | 60 | 61 | 63 | 65 | 65 | 67 | 66 | 65 | H 70 | 72 | 70 | 71 | 69 | 69 | 72 | 71 | 72 | 74 | 70 | 65 | 63 |
| 27 | 55 | 50 | 54 | 54 | 46 | 43 | 58 | 61 | 63 | 63 | U C 69 | 71 | U C 72 | U C 76 | U C 78 | I C 80 | 80 | 81 | 79 | 80 | 78 | 78 | 70 | 67 |
| 28 | F 65 | 58 | U F 57 | J F 53 | 55 | U F 50 | 62 | 69 | 73 | 79 | 80 | U S 83 | 90 | 91 | 91 | 90 | 85 | 83 | 86 | 85 | 82 | 76 | 70 | 71 |
| 29 | 71 | 70 | 69 | 63 | U S 58 | U S 54 | 62 | 69 | 69 | H 70 | H 69 | 66 | 66 | 71 | 68 | 67 | 69 | 68 | 68 | 69 | 69 | 67 | F 63 | F 60 |
| 30 | F 58 | F 56 | F 56 | F 56 | F 50 | F 50 | 64 | 76 | 83 | 91 | 101 | 102 | 100 | 102 | 102 | 107 | 103 | U S 98 | U S 99 | U S 99 | U S 96 | 84 | 83 | 77 |
| MED | 65 | 61 | 60 | 56 | 52 | 51 | 62 | 72 | 77 | 80 | 91 | 92 | 97 | 98 | 98 | 97 | 96 | 94 | 94 | 92 | 82 | 78 | 72 | 68 |
| NO | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 28 | 29 | 29 | 29 | 29 | 29 | 29 | 29 | 29 | 29 | 29 | 30 | 30 | 30 | 30 | 30 | 30 |
| RAN | | | | | | | | | | | | | | | | | | | | | | | | |

CENTRAL RADIO PROPAGATION LABORATORY, NATIONAL BUREAU OF STANDARDS, BOULDER, COLO.

# TABLE 74
# IONOSPHERIC DATA

foF2, 0.1 Mc, April 1957
Station WASHINGTON Lat. 38.7N Long. 77.1W Sweep 1.0 Mc to 25.0 Mc in 13.5 Sec. 75.0W Manual ☐ Mean Time Automatic ☒

| | 0030 | 0130 | 0230 | 0330 | 0430 | 0530 | 0630 | 0730 | 0830 | 0930 | 1030 | 1130 | 1230 | 1330 | 1430 | 1530 | 1630 | 1730 | 1830 | 1930 | 2030 | 2130 | 2230 | 2330 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | U F 56 | U F 48 | U F 46 | U F 47 | F 42 | U F 50 | C | 100 | 91 | 97 | 106 | 119 | 119 | 122 | 120 | 117 | 117 | 109 | 94 | 83 | 75 | U S 72 | F 68 | F 66 |
| 02 | F 58 | F 50 | U F 41 | U F 35 | U F 36 | F 42 | F 61 | 72 | 75 | 87 | U S 93 | 100 | 102 | 105 | I B 102 | 100 | 100 | 97 | 92 | 87 | 82 | 82 | 82 | 80 |
| 03 | F 74 | F 62 | U F 59 | 49 | F 46 | F 46 | 68 | 85 | 94 | U C 104 | 110 | 118 | 117 | 117 | 116 | 117 | 118 | 118 | 105 | 90 | 90 | 88 | F 70 | U F 62 |
| 04 | U F 60 | U F 59 | U F 55 | U F 55 | U F 48 | 57 | 76 | 97 | 110 | 112 | 117 | 117 | 120 | 125 | 122 | 117 | 115 | 114 | 110 | 96 | 84 | 76 | 69 | 66 |
| 05 | 65 | 66 | F 56 | U F 54 | U F 42 | U F 44 | C | C | C | C | C | C | C | C | C | C | C | 102 | 98 | 84 | 78 | F 77 | 66 | 57 |
| 06 | U F 55 | U F 48 | U F 37 | U F 36 | U F 37 | U F 39 | F 50 | F 54 | 61 | 67 | 71 | 74 | 80 | 84 | 85 | 86 | 83 | 83 | 78 | 72 | 69 | 73 | U F 69 | U F 66 |
| 07 | F 65 | F 61 | U F 57 | F 55 | F 47 | 50 | 69 | 80 | 91 | 95 | 102 | 110 | 110 | 109 | 110 | 110 | 107 | 103 | 102 | 92 | 85 | 80 | 85 | U S 78 |
| 08 | 80 | 69 | 64 | 63 | 64 | 63 | 68 | 72 | 70 | 72 | 79 | 85 | 86 | 87 | 86 | 84 | 80 | 80 | 83 | 81 | 71 | 68 | 62 | 63 |
| 09 | 62 | 62 | 58 | 57 | 56 | 56 | I C 62 | I C 66 | 68 | 69 | 76 | 77 | 84 | 86 | 85 | 81 | 84 | 86 | 88 | 85 | 78 | 71 | 70 | U F 55 |
| 10 | I F 39 | J F 49 | U F 49 | F 38 | F 31 | F 35 | F 43 | F 47 | 49 | E G 55 | U B 58 | 67 | 70 | 77 | 76 | 83 | 78 | 80 | 80 | 73 | 67 | 63 | 62 | 58 |
| 11 | 57 | F 58 | F 52 | 50 | 49 | 53 | 66 | 78 | 79 | 74 | 76 | 87 | 90 | 94 | 96 | 98 | 98 | 100 | 99 | 87 | 76 | 71 | 69 | 70 |
| 12 | 67 | 63 | 58 | 57 | 56 | 57 | 71 | 83 | 90 | 101 | 107 | 109 | 107 | 109 | I C 110 | 111 | 109 | 105 | 102 | 93 | 87 | 83 | 80 | 80 |
| 13 | 76 | 71 | 67 | 62 | F 59 | 69 | 92 | 101 | 108 | 111 | 117 | 121 | 123 | 120 | 117 | 113 | 109 | 105 | 105 | 100 | 93 | 86 | 78 | 74 |
| 14 | 71 | 69 | 67 | F 62 | F 56 | 62 | 77 | 92 | 98 | 107 | 114 | 115 | 115 | 117 | 115 | 110 | 108 | 105 | U S 104 | U S 95 | 90 | 85 | 82 | 82 |
| 15 | U S 78 | 73 | F 70 | 69 | 67 | 67 | 76 | 90 | 100 | 109 | 117 | 119 | 116 | 117 | 116 | 110 | 106 | 105 | 111 | 115 | J S 102 | 92 | 89 | 90 |
| 16 | 90 | 80 | 75 | 72 | 68 | 61 | 71 | H 77 | 91 | J S 96 | U S 102 | 107 | 109 | 107 | 108 | 101 | 93 | 90 | 86 | 84 | 80 | 76 | 71 | 70 |
| 17 | 63 | 62 | 58 | 63 | 58 | 54 | 63 | 65 | 68 | 69 | 71 | 76 | 75 | 76 | 75 | I B 74 | 74 | 77 | 80 | 80 | U S 77 | 70 | 66 | 63 |
| 18 | 54 | 48 | 45 | 43 | 39 | 42 | 48 | 61 | 70 | 88 | 97 | 104 | 102 | 104 | 105 | 110 | 108 | 108 | 107 | 100 | 82 | 80 | 62 | J S 64 |
| 19 | 40 | F | U F 31 | F 29 | F 28 | 40 | 46 | 56 | 61 | U J 60 | 65 | 70 | 72 | 76 | 74 | 75 | 74 | 78 | 80 | U S 74 | 69 | 60 | 62 | 57 |
| 20 | F 56 | F 54 | U F 41 | U F 35 | F 34 | F 45 | 60 | 63 | 66 | 69 | 72 | 75 | 77 | 82 | 85 | 82 | 85 | 85 | 86 | 83 | 75 | 77 | J S 78 | J S 76 |
| 21 | 69 | U F 62 | J S 65 | J S 65 | F 60 | 58 | 63 | 68 | 68 | 69 | 73 | 75 | 77 | 74 | 74 | 72 | 70 | 70 | 70 | 71 | 69 | 66 | 63 | 60 |
| 22 | F 60 | F 58 | F 56 | U F 51 | F 48 | F 61 | 78 | 83 | 88 | 92 | 95 | 98 | 98 | 100 | 100 | 100 | 101 | 98 | 99 | 93 | 86 | 82 | 77 | 78 |
| 23 | 74 | 72 | F 70 | 69 | F 64 | F 62 | 80 | 92 | 102 | 100 | J S 102 | 102 | 104 | 101 | 99 | 98 | 95 | 96 | 100 | 97 | 83 | 79 | 74 | 75 |
| 24 | 77 | 74 | 71 | 62 | 59 | 62 | 77 | 80 | 78 | 72 | 70 | 70 | 68 | 76 | 75 | 75 | 77 | 76 | 76 | 76 | 74 | 76 | 70 | 65 |
| 25 | 58 | 57 | 55 | 52 | F 50 | F 58 | F 70 | 76 | 82 | 86 | U R 90 | U R 92 | U R 100 | U R 100 | 97 | 93 | 93 | 94 | U S 93 | 90 | 82 | 78 | 70 | 70 |
| 26 | 67 | 64 | 60 | 62 | 61 | 65 | 66 | 64 | 64 | 62 | 69 | 72 | 72 | 71 | 69 | 69 | 69 | 70 | 71 | 73 | 74 | 67 | 63 | 59 |
| 27 | J S 55 | 52 | 55 | 50 | F 38 | 50 | 59 | 63 | 64 | 68 | 70 | 74 | U C 73 | U C 77 | I C 80 | 80 | 83 | 80 | 79 | 80 | 77 | U S 76 | 70 | 68 |
| 28 | 62 | F 57 | U F 55 | J S 52 | 54 | 57 | F 67 | 69 | 77 | 79 | 80 | I R 88 | 90 | 91 | 91 | U R 85 | 88 | 83 | 85 | 84 | 79 | 72 | 71 | 72 |
| 29 | 71 | 69 | U S 68 | U S 61 | 57 | 55 | H 68 | 68 | 72 | 67 | 69 | 67 | 67 | 68 | 68 | 68 | 68 | 69 | 68 | 69 | 68 | 66 | 62 | F 59 |
| 30 | F 57 | F 56 | F 57 | F 54 | F 47 | F 58 | 71 | 79 | 88 | 93 | U S 101 | 101 | 102 | U S 101 | 102 | 105 | U S 101 | 99 | U S 100 | U S 100 | 90 | 85 | 80 | U S 72 |
| MED | 62 | 62 | 57 | 54 | 50 | 56 | 68 | 76 | 78 | 86 | 90 | 92 | 98 | 100 | 97 | 98 | 93 | 95 | 92 | 84 | 78 | 76 | 70 | 67 |
| NO | 30 | 29 | 30 | 30 | 30 | 30 | 28 | 29 | 29 | 29 | 29 | 29 | 29 | 29 | 29 | 29 | 29 | 30 | 30 | 30 | 30 | 30 | 30 | 30 |
| RAN | | | | | | | | | | | | | | | | | | | | | | | | |

CENTRAL RADIO PROPAGATION LABORATORY, NATIONAL BUREAU OF STANDARDS, BOULDER, COLO.

# TABLE 75
# IONOSPHERIC DATA

foFl, 0.1 Mc, April 1957
Station WASHINGTON Lat. 38.7N Long. 77.1W Sweep 1.0 Mc to 25.0 Mc in 13.5 Sec. 75.0W Mean Time
Manual ☐ Automatic ☒

| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | | | | | | | | C | L | L | L | L | 670 | 630 | L | L | L | L | | | | | | |
| 02 | | | | | | | | L | L | L | L | L | L | L | L | L | L | L | | | | | | |
| 03 | | | | | | | | | L | L | L | L | L | L | L | L | L | L | L | | | | | |
| 04 | | | | | | | | | L | L | L | L | L | L | L | L | L | | | | | | | |
| 05 | | | | | | | | C | C | C | C | C | C | C | C | C | C | C | | | | | | |
| 06 | | | | | | | | | L | | L | L | 590 | L | L | L | L | L | | | | | | |
| 07 | | | | | | | | | L | L | L | L | L | L | L | L | L | L | | | | | | |
| 08 | | | | | | | | L | L | L | 570 | 580 | 630 | 590 | 590 | L | L | L | L | | | | | |
| 09 | | | | | | | | C | L | L | H 590 | H 590 | 570 | L | 570 | 570 | 570 | L | | | | | | |
| 10 | | | | | | | | | | H 530 | 530 | H 530 | H 560 | 580 | L | L | L | L | | | | | | |
| 11 | | | | | | | | | | L | 560 | 570 | L | L | L | L | L | | | | | | | |
| 12 | | | | | | | | | L | L | L | L | L | L | L | C | L | L | L | | | | | |
| 13 | | | | | | | | | L | L | L | L | L | L | L | L | L | L | | | | | | |
| 14 | | | | | | | | | L | L | L | L | L | L | L | L | L | L | | | | | | |
| 15 | | | | | | | | | L | B | L | L | L | L | L | L | L | L | L | | | | | |
| 16 | | | | | | | | | L | L | L | L | L | L | L | L | L | L | L | | | | | |
| 17 | | | | | | | | L | L | H 540 | H 550 | U S 550 | 550 | 540 | 580 | 550 | B 530 | 490 | L | | | | | |
| 18 | | | | | | | | | | | | | 500 | L | L | L | L | L | | | | | | |
| 19 | | | | | | | | | L | 560 | 560 | 550 | 520 | I B 530 | A 540 | A | U A 520 | L | | | | | | |
| 20 | | | | | | | | | L | L | H 580 | 560 | 600 | 590 | 600 | 630 | | L | L | L | | | | |
| 21 | | | | | | | | L | L | 550 | 550 | 560 | 570 | 580 | 570 | 550 | 530 | 480 | L | | | | | |
| 22 | | | | | | | | | L | L | 660 | L | 620 | 630 | 630 | 560 | L | L | L | | | | | |
| 23 | | | | | | | | L | L | L | | H 650 | H 680 | H 620 | H 610 | H 640 | L | L | L | | | | | |
| 24 | | | | | | | L | L | 500 | 570 | 570 | 550 | 550 | B | 570 | 570 | 560 | L | L | | | | | |
| 25 | | | | | | | L | L | L | L | L | L | L | L | L | 620 | 570 | L | | | | | | |
| 26 | | | | | | | | L | L | 530 | H 560 | H 590 | 550 | 580 | 550 | 550 | 500 | 480 | L | | | | | |
| 27 | | | | | | | | | H 500 | 540 | U R 580 | 580 | U C 590 | U C 580 | U C 600 | I C 590 | 550 | L | | | | | | |
| 28 | | | | | | | | L | U F 540 | 560 | 590 | U R 600 | H 630 | H 590 | 580 | 590 | 510 | 450 | L | | | | | |
| 29 | | | | | | | L | 440 | 510 | 510 | H 520 | U S 540 | 540 | 560 | 530 | 530 | 490 | 470 | L | | | | | |
| 30 | | | | | | | | L | L | L | L | H 630 | 590 | L | 630 | L | L | | | | | | | |
| MED | | | | | | | | | | 540 | 560 | 570 | 580 | 580 | 580 | 570 | 530 | 480 | | | | | | |
| NO | | | | | | | | 1 | 4 | 9 | 14 | 15 | 18 | 13 | 14 | 12 | 10 | 5 | | | | | | |
| RAN | | | | | | | | | | | | | | | | | | | | | | | | |

CENTRAL RADIO PROPAGATION LABORATORY, NATIONAL BUREAU OF STANDARDS, BOULDER, COLO.

TABLE 76

# IONOSPHERIC DATA

foE, 0.05 Mc, April 1957
Station WASHINGTON Lat. 38.7N Long. 77.1W Sweep 1.0 Mc to 25.0 Mc in 13.5 Sec. 75.0W Mean Time
Manual ☐ Automatic ☒

| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | | | | | | | 165 | I C 260 | H 315 | 360 | H 360 | H 375 | U B 385 | 390 | U R 370 | 360 | 325 | 275 | 190 | | | | | |
| 02 | | | | | | | 175 | 265 | H 310 | U R 335 | U R 340 | U R 355 | 360 | R | R | B | 330 | 280 | 215 | | | | | |
| 03 | | | | | | | S | 250 | 300 | U R 330 | I A 350 | U R 355 | H 370 | U H 385 | H 370 | 350 | 330 | 285 | 200 | | | | | |
| 04 | | | | | | | 180 | U R 240 | U R 290 | 330 | U R 340 | I R 365 | I B 375 | 380 | 370 | 350 | 330 | 280 | U H 200 | | | | | |
| 05 | | | | | | | 185 | C | C | C | C | C | C | C | C | C | C | C | 200 | | | | | |
| 06 | | | | | | | 175 | 245 | 295 | 325 | 340 | I B 340 | 355 | 360 | 365 | U H 350 | I A 310 | 270 | 205 | | | | | |
| 07 | | | | | | | U B 170 | 255 | 300 | I R 340 | U R 360 | I B 365 | U R 365 | 360 | H 370 | 360 | 330 | 285 | H 200 | | | | | |
| 08 | | | | | | | 175 | H 260 | U R 285 | 300 | U R 320 | 350 | I B 370 | U B 385 | 375 | 360 | 335 | 275 | 200 | | | | | |
| 09 | | | | | | | H 195 | I C 250 | H 310 | H 340 | 360 | 360 | 360 | U B 360 | U H 350 | H 350 | H 320 | 280 | H 220 | | | | | |
| 10 | | | | | | | 215 | H 270 | H 300 | H 330 | 350 | I R 350 | 350 | U H 370 | H 360 | 335 | 325 | 275 | H 235 | | | | | |
| 11 | | | | | | | 175 | H 265 | H 305 | 325 | 350 | 350 | 360 | I R 360 | I R 350 | I R 340 | 325 | 285 | U H 195 | | | | | |
| 12 | | | | | | | 180 | 270 | 310 | 340 | 350 | H 365 | H 390 | 395 | U B 390 | I C 380 | 335 | 280 | 220 | | | | | |
| 13 | | | | | | | H 190 | U H 270 | I R 310 | 335 | H 370 | H 375 | I A 390 | 380 | U R 380 | U R 355 | 340 | 285 | 220 | | | | | |
| 14 | | | | | | | H 180 | 285 | H 320 | H 355 | U R 375 | 380 | I A 390 | 385 | U R 390 | 365 | 330 | 300 | H 230 | | | | | |
| 15 | | | | | | | H 195 | H 280 | H 330 | I B 355 | I B 380 | H 390 | I R 390 | U R 385 | I R 390 | U R 370 | 335 | H 290 | 220 | | | | | |
| 16 | | | | | | | B | A | H 325 | R | R | R | R | I R 390 | U R 380 | H 370 | 340 | 285 | H 235 | | | | | |
| 17 | | | | | | | H 210 | H 280 | U R 325 | 350 | 365 | 380 | I R 390 | U R 390 | I B 385 | B | B | 345 | H 235 | 175 | | | | |
| 18 | | | | | | | U R 190 | 280 | 320 | I R 350 | 370 | I B 380 | B | B | R | I R 370 | I B 340 | U R 310 | 240 | | | | | |
| 19 | | | | | | | U R 220 | U R 280 | U R 310 | I R 350 | U R 385 | 390 | 390 | I A 390 | 370 | 350 | 330 | H 290 | H 220 | | | | | |
| 20 | | | | | | | A | 280 | 310 | R | R | R | R | R | R | U R 360 | 340 | 300 | H 245 | | | | | |
| 21 | | | | | | | 220 | H 275 | 320 | U R 345 | 370 | U R 375 | U R 380 | 390 | 385 | U R 370 | 330 | I B 290 | 230 | | | | | |
| 22 | | | | | | | 215 | 265 | 300 | U R 330 | 390 | U R 390 | R | R | 385 | 365 | H 340 | 300 | 230 | | | | | |
| 23 | | | | | | | H 215 | 290 | U R 330 | U R 350 | I R 370 | U H 390 | 400 | I A 395 | 390 | H 370 | 350 | 300 | U R 240 | | | | | |
| 24 | | | | | | | B | U H 275 | I B 310 | U R 350 | U R 380 | 390 | 390 | U R 390 | I B 385 | U R 380 | U R 340 | 295 | B | | | | | |
| 25 | | | | | | | B | U H 280 | U R 330 | R | B | R | R | R | R | B | U R 340 | 280 | B | | | | | |
| 26 | | | | | | | R | 290 | A | R | U R 370 | 380 | B | B | B | B | B | 290 | U S 240 | | | | | |
| 27 | | | | | | | 220 | 285 | I R 330 | 360 | I B 365 | U R 370 | C | C | C | C | 340 | 300 | C | | | | | |
| 28 | | | | | | | 225 | 290 | 330 | 335 | A | B | R | 375 | I B 370 | 365 | I B 350 | 285 | S | | | | | |
| 29 | | | | | | | H 230 | H 280 | 315 | U R 350 | U R 375 | 375 | I R 380 | 375 | U R 365 | H 350 | 340 | 295 | H 235 | | | | | |
| 30 | | | | | | | H 235 | 280 | 335 | 350 | 365 | U R 380 | I A 390 | I A 390 | 365 | 350 | 340 | H 300 | 230 | | | | | |
| MED | | | | | | | 190 | 275 | 310 | 340 | U 365 | 375 | U 380 | U 385 | U 370 | 360 | 335 | 285 | 220 | | | | | |
| NO | | | | | | | 24 | 28 | 28 | 25 | 25 | 25 | 21 | 22 | 23 | 24 | 27 | 29 | 26 | 1 | | | | |
| RAN | | | | | | | | | | | | | | | | | | | | | | | | |

CENTRAL RADIO PROPAGATION LABORATORY, NATIONAL BUREAU OF STANDARDS, BOULDER, COLO.

TABLE 77

# IONOSPHERIC DATA

foEs, 0.1 Mc, April 1957
Station WASHINGTON Lat. 38.7N Long. 77.1W Sweep 1.0 Mc to 25.0 Mc in 13.5 Sec. 75.0W Mean Time
Manual ☐ Automatic ☒

| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | S | S | E | E | E | S | G | C | G | G | G | B | B | B | G | B | G | G | H 23 | J 18 | 20 | J 34 | S | S |
| 02 | S | S | S | S | S | S | G | G | G | G | G | G | B | B | B | B | G | G | G | S | S | J 24 | S | S |
| 03 | S | S | S | S | S | S | B | 29 | 33 | G | J 35 | G | G | G | G | G | G | G | G | S | S | 17 | S | S |
| 04 | S | S | S | S | S | S | G | G | G | 35 | 35 | G | B | G | G | G | G | G | G | S | 23 | 27 | S | S |
| 05 | S | S | S | S | S | S | G | C | C | C | C | C | C | C | C | C | C | C | G | S | S | S | S | S |
| 06 | S | S | S | S | S | S | G | G | G | G | G | B | G | G | G | 34 | 33 | 29 | G | S | S | S | S | S |
| 07 | S | S | S | S | S | S | G | G | G | 34 | G | G | G | G | G | G | G | G | G | S | S | S | S | S |
| 08 | S | S | S | S | S | S | G | G | 30 | 32 | 34 | G | B | B | B | 40 | 35 | G | G | B | S | S | S | S |
| 09 | S | S | S | S | S | S | G | C | G | G | G | G | G | B | G | G | G | G | G | S | S | S | S | S |
| 10 | U S 22 | 18 | F 36 | J F 22 | S | S | G | G | G | G | G | G | G | G | G | G | G | G | G | B | S | S | S | S |
| 11 | S | S | S | S | J 14 | S | 21 | G | G | G | G | G | G | B | G | G | G | G | G | 17 | S | S | S | S |
| 12 | S | S | S | S | S | S | 19 | G | G | G | H 37 | G | G | G | G | C | G | G | 23 | S | S | S | S | S |
| 13 | S | S | S | S | S | S | G | G | 31 | G | G | G | 41 | G | 40 | 39 | G | 30 | 24 | S | S | S | S | S |
| 14 | S | S | S | J 48 | J 16 | S | 20 | G | G | G | G | G | 40 | G | G | G | G | G | G | S | S | S | S | S |
| 15 | S | S | S | S | S | S | G | G | G | B | B | G | G | G | G | G | G | G | G | S | S | S | S | S |
| 16 | S | S | S | S | S | S | B | 28 | G | G | G | G | 36 | G | G | G | G | G | G | B | S | S | S | S |
| 17 | S | S | S | J 38 | S | S | G | G | G | G | G | G | G | 36 | B | B | B | G | G | G | S | S | S | S |
| 18 | S | S | S | S | S | S | G | 33 | 35 | 37 | 40 | 41 | B | 39 | G | G | B | G | G | B | S | S | S | S |
| 19 | S | J 24 | S | S | S | S | G | G | G | G | G | G | G | 40 | 47 | J 78 | J 68 | 39 | 25 | 37 | S | S | S | S |
| 20 | S | S | S | S | S | S | 22 | G | G | G | G | G | G | G | 42 | 40 | G | G | G | S | S | S | S | S |
| 21 | S | S | S | S | S | S | G | G | G | G | J 66 | G | G | G | G | G | G | B | G | B | B | S | S | S |
| 22 | S | S | S | S | S | S | G | 31 | 33 | G | G | G | G | G | G | 38 | G | 34 | G | B | S | S | S | J 27 |
| 23 | S | S | S | S | 22 | S | G | G | G | G | G | G | 42 | 40 | G | G | 37 | J 41 | J 35 | J 34 | S | S | S | S |
| 24 | S | S | S | S | S | B | B | B | B | B | B | B | B | B | B | G | B | G | B | B | S | J 20 | S | S |
| 25 | S | S | S | S | S | S | B | G | G | B | B | B | B | B | B | B | G | G | B | B | S | S | S | S |
| 26 | S | S | S | S | S | S | G | G | 34 | G | G | G | B | B | B | B | B | G | G | B | B | S | S | S |
| 27 | S | S | S | S | S | S | G | G | G | G | G | G | C | C | C | C | G | G | C | S | S | S | S | S |
| 28 | S | S | S | S | S | 17 | G | 30 | 36 | 42 | 39 | B | B | B | B | B | B | B | S | B | S | S | S | S |
| 29 | S | S | S | S | S | S | G | G | G | G | G | J 47 | 41 | G | 44 | G | G | G | G | B | S | S | S | S |
| 30 | S | S | S | S | S | S | 26 | 33 | 37 | 40 | 40 | G | B | 40 | G | G | G | G | B | B | S | S | S | S |
| MED | | | | | | | | | | | | | | | | | | | | | | U 24 | | |
| NO | 1 | 2 | 2 | 4 | 4 | 2 | 30 | 27 | 29 | 29 | 29 | 29 | 28 | 28 | 28 | 27 | 29 | 29 | 28 | 17 | 4 | 5 | | 1 |
| RAN | | | | | | | | | | | | | | | | | | | | | | | | |

TABLE 78

# IONOSPHERIC DATA

fMIN, 0.1 Mc, April 1957
Station WASHINGTON Lat. 38.7N Long. 77.1W Sweep 1.0 Mc to 25.0 Mc in 13.5 Sec. 75.0W Mean Time
Manual ☐ Automatic ☒

| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | E S 16 | E S 16 | E | E | E | E S 15 | 16 | C | 22 | 23 | 26 | 41 | 40 | 40 | 32 | 37 | 24 | 16 | 16 | E S 16 | E S 15 | E S 16 | E S 16 | E S 16 |
| 02 | E S 16 | E S 16 | E S 16 | E S 16 | E S 16 | E S 16 | 16 | 16 | 17 | 22 | 27 | 25 | 40 | 40 | 38 | 59 | 26 | 17 | 16 | E S 16 | E S 16 | E S 16 | E S 16 | E S 16 |
| 03 | E S 16 | E S 16 | E S 16 | E S 16 | E S 16 | E S 16 | 17 | 16 | 17 | 16 | 19 | 23 | 23 | 27 | 24 | 21 | 20 | 17 | 16 | E S 16 | E S 16 | E S 16 | E S 16 | E S 16 |
| 04 | E S 16 | E S 16 | E S 16 | E S 16 | E S 16 | E S 16 | 16 | 16 | 18 | 22 | 21 | 28 | 40 | 35 | 30 | 23 | 20 | 18 | 16 | E S 16 | E S 16 | E S 16 | E S 16 | E S 16 |
| 05 | E S 16 | E S 16 | E S 16 | E S 16 | E S 16 | E S 16 | E S 16 | C | C | C | C | C | C | C | C | C | C | C | 16 | E S 16 | E S 16 | E S 16 | E S 16 | E S 16 |
| 06 | E S 16 | E S 16 | E S 16 | E S 16 | E S 14 | E S 16 | 16 | 19 | 17 | 21 | 25 | 39 | 28 | 29 | 29 | 26 | 23 | 16 | 16 | E S 16 | E S 16 | E S 16 | E S 16 | E S 16 |
| 07 | E S 16 | E S 16 | E S 16 | E S 16 | E S 13 | E S 16 | 16 | 16 | 17 | 20 | 25 | 27 | 27 | 22 | 20 | 20 | 18 | 18 | 16 | E S 16 | E S 16 | E S 16 | E S 16 | E S 16 |
| 08 | E S 16 | E S 16 | E S 16 | E S 16 | E S 14 | E S 16 | 17 | 16 | 17 | 21 | 27 | 28 | 41 | 40 | 35 | 28 | 20 | 17 | 16 | 17 | E S 16 | E S 16 | E S 16 | E S 17 |
| 09 | E S 16 | E S 16 | E S 16 | E S 16 | E S 16 | E S 16 | E S 16 | C | 17 | 20 | 24 | 25 | 26 | 40 | 28 | 21 | 21 | 16 | 16 | E S 16 | E S 16 | E S 16 | E S 16 | E S 16 |
| 10 | E S 16 | E S 16 | E S 16 | E S 16 | E S 19 | E S 16 | 16 | 17 | 17 | 19 | 22 | 27 | 30 | 30 | 24 | 22 | 17 | 16 | 16 | 18 | E S 16 | E S 16 | E S 16 | E S 16 |
| 11 | E S 16 | E S 16 | E S 13 | E S 13 | E S 13 | E S 13 | 16 | 16 | 17 | 19 | 29 | 28 | 31 | 47 | 26 | 23 | 20 | 16 | 16 | E S 16 | E S 16 | E S 16 | E S 16 | E S 16 |
| 12 | E S 16 | E S 16 | E S 16 | E S 16 | E S 16 | E S 16 | 16 | 16 | 17 | 25 | 20 | 21 | 20 | 18 | 36 | C | 18 | 16 | 16 | E S 16 | E S 16 | E S 16 | E S 16 | E S 16 |
| 13 | E S 16 | E S 16 | E S 16 | E S 16 | E S 16 | E S 16 | 16 | 16 | 17 | 18 | 21 | 31 | 31 | 27 | 29 | 26 | 23 | 17 | 16 | E S 16 | E S 16 | E S 16 | E S 16 | E S 16 |
| 14 | E S 16 | E S 16 | E S 16 | E S 16 | E S 13 | E S 16 | E S 14 | E S 16 | 19 | 20 | 21 | 23 | 28 | 34 | 31 | 27 | 18 | 16 | 16 | E S 16 | E S 16 | E S 17 | E S 16 | E S 16 |
| 15 | E S 16 | E S 16 | E S 16 | E S 12 | E S 11 | E S 16 | 16 | 17 | 20 | 74 | 40 | 30 | 28 | 24 | 25 | 22 | 17 | 17 | 16 | E S 16 | E S 16 | E S 16 | E S 16 | E S 16 |
| 16 | E S 16 | E S 16 | E S 16 | E S 16 | E S 16 | E S 16 | 35 | 19 | 25 | 25 | 25 | 30 | 29 | 30 | 25 | 23 | 19 | 19 | 16 | 17 | E S 16 | E S 16 | E S 16 | E S 16 |
| 17 | E S 17 | E S 16 | E S 15 | E S 16 | E S 16 | E S 16 | 16 | 17 | 24 | 19 | 27 | 23 | 27 | 27 | 33 | 42 | 50 | 30 | 17 | 16 | E S 16 | E S 16 | E S 16 | E S 16 |
| 18 | E S 16 | E S 16 | E S 16 | E S 16 | E S 13 | E S 17 | 18 | 18 | 23 | 23 | 26 | 40 | 43 | 37 | 31 | 27 | 46 | 18 | 17 | 17 | E S 16 | E S 16 | E S 16 | E S 27 |
| 19 | E S 18 | E S 16 | E S 16 | E S 16 | E S 16 | E S 16 | 19 | 21 | 22 | 28 | 30 | 31 | 33 | 36 | 32 | 25 | 24 | 17 | 17 | 16 | E S 16 | E S 16 | E S 16 | E S 16 |
| 20 | E S 16 | E S 16 | E S 16 | E S 14 | E S 14 | E S 16 | 17 | 21 | 26 | 24 | 31 | 30 | 26 | 30 | 26 | 22 | 23 | 19 | 18 | E S 16 | E S 16 | E S 16 | E S 16 | E S 16 |
| 21 | E S 16 | E S 16 | E S 16 | E S 16 | E S 16 | E S 16 | 18 | 21 | 22 | 30 | 33 | 40 | 43 | 35 | 34 | 31 | 27 | 36 | 21 | 19 | 17 | E S 16 | E S 20 | E S 16 |
| 22 | E S 16 | E S 16 | E S 16 | E S 16 | E S 12 | E S 16 | 24 | 17 | 24 | 28 | 33 | 29 | 33 | 40 | 31 | 33 | 28 | 24 | 18 | 17 | E S 16 | E S 16 | E S 20 | E S 15 |
| 23 | E S 18 | E S 17 | E S 16 | E S 16 | E S 16 | E S 18 | 16 | 20 | 22 | 24 | 26 | 37 | 35 | 37 | 33 | 31 | 30 | 30 | 23 | 18 | E S 16 | E S 16 | E S 16 | E S 16 |
| 24 | E S 16 | E S 17 | E S 16 | E S 17 | E S 16 | 17 | 26 | 31 | 36 | 33 | 45 | 45 | 32 | 58 | 41 | 29 | 37 | 25 | 28 | 26 | E S 24 | E S 18 | E S 16 | E S 17 |
| 25 | E S 21 | E S 18 | E S 17 | E S 20 | E S 16 | E S 17 | 24 | 31 | 31 | 37 | 40 | 50 | 28 | 37 | 45 | 39 | 29 | 25 | 29 | 19 | E S 16 | E S 16 | E S 16 | E S 18 |
| 26 | E S 18 | E S 16 | E S 16 | E S 17 | E S 16 | E S 17 | 17 | 18 | 24 | 26 | 30 | 34 | 43 | 42 | 46 | 39 | 37 | 29 | 28 | 18 | 20 | E S 16 | E S 19 | E S 17 |
| 27 | E S 16 | E S 16 | E S 20 | E S 16 | E S 19 | E S 18 | E S 16 | 19 | 26 | 29 | U B 42 | 50 | U C 45 | U C 32 | U C 32 | C | 25 | 21 | 29 | E S 21 | E S 22 | E S 15 | E S 16 | E S 25 |
| 28 | E S 16 | E S 16 | E S 13 | E S 17 | E S 16 | E S 16 | 17 | 24 | 27 | 28 | 30 | 42 | 45 | 40 | 38 | 37 | 38 | 22 | E S 29 | 22 | E S 16 | E S 21 | E S 20 | E S 20 |
| 29 | E S 16 | E S 18 | E S 16 | E S 16 | E S 21 | E S 16 | 18 | 19 | 23 | 20 | 33 | 28 | 31 | 23 | 20 | 21 | 16 | 16 | 16 | 19 | E S 15 | E S 16 | E S 16 | E S 16 |
| 30 | E S 16 | E S 15 | E S 13 | E S 16 | E S 13 | E S 16 | 16 | 16 | 20 | 18 | 30 | 29 | 24 | 31 | 28 | 22 | 25 | 18 | 26 | 17 | E S 16 | E S 16 | E S 16 | E S 16 |
| MED | | | | | | | | | | | | | | | | | | | | | | | | |
| NO | | | | | | | | | | | | | | | | | | | | | | | | |
| RAN | | | | | | | | | | | | | | | | | | | | | | | | |

CENTRAL RADIO PROPAGATION LABORATORY, NATIONAL BUREAU OF STANDARDS, BOULDER, COLO.

TABLE 79

# IONOSPHERIC DATA

h'F2, Km, April 1957
Station WASHINGTON Lat. 38.7N Long. 77.1W Sweep 1.0 Mc to 25.0 Mc in 13.5 Sec. 75.0W Mean Time
Manual ☐ Automatic ☒

| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | | | | | | | | C | 265 | L | 340 | 360 | U L 380 | 360 | L | L | L | L | | | | | | |
| 02 | | | | | | | | L | L | L | L | L | L | L | L | L | L | L | | | | | | |
| 03 | | | | | | | | | L | L 270 | L | L | L | L | L | L | L | L | L | | | | | |
| 04 | | | | | | | | | L | 240 | U L 270 | L | L | L | L | L | L | | | | | | | |
| 05 | | | | | | | | | | | | | | | | | | | | | | | | |
| 06 | | | | | | | | | | | L | L | 410 | L | L | L | 300 | L | | | | | | |
| 07 | | | | | | | | | 250 | 250 | 300 | L | 290 | L | L | L | L | L | | | | | | |
| 08 | | | | | | | | L | L | L | 415 | 380 | L | 385 | 390 | L | L | L | 295 | | | | | |
| 09 | | | | | | | | | 335 | L | L | L | 415 | L | 380 | 380 | U L 370 | L | | | | | | |
| 10 | | | | | | | | | | 450 | L | 470 | L | L | L | L | L | L | | | | | | |
| 11 | | | | | | | | | | L | L | 370 | L | L | L | L | L | | | | | | | |
| 12 | | | | | | | | | 250 | L | L | L | U L 335 | L | L | C | L | L | L | | | | | |
| 13 | | | | | | | | | L | 250 | L | U L 300 | L | L | L | L | L | L | | | | | | |
| 14 | | | | | | | | | L | 270 | L | L | L | L | L | L | L | L | | | | | | |
| 15 | | | | | | | | | L | B | L | L | L | L | L | 290 | L | L | L | | | | | |
| 16 | | | | | | | | | L | L | L | 340 | L | L | | | L | L | 280 | | | | | |
| 17 | | | | | | | | | L | 500 | 520 | 470 | 450 | 460 | 450 | 450 | 470 | 435 | L | | | | | |
| 18 | | | | | | | | | | | | | L | L | U L 400 | L | L | L | | | | | | |
| 19 | | | | | | | | | L | L | L | 550 | 470 | 480 | 460 | I A 430 | 400 | U L 390 | | | | | | |
| 20 | | | | | | | | | L | L | 430 | 400 | 430 | 435 | 400 | L | L | L | L | | | | | |
| 21 | | | | | | | | L | L | L | 450 | 440 | 420 | 440 | 445 | 430 | 430 | 390 | L | | | | | |
| 22 | | | | | | | | | L | L | 385 | L | 390 | 370 | 390 | 350 | 350 | L | L | | | | | |
| 23 | | | | | | | | 260 | 260 | L | L | 360 | 370 | 325 | 365 | 380 | L | L | L | | | | | |
| 24 | | | | | | | 300 | 295 | 340 | 440 | 520 | 540 | 580 | 530 | 480 | 470 | 450 | L | L | | | | | |
| 25 | | | | | | | L | L | L | L | U L 280 | 400 | 400 | L | U L 380 | 380 | 360 | L | | | | | | |
| 26 | | | | | | | | L | L | 470 | 605 | 560 | 520 | 515 | 505 | 530 | 480 | 430 | L | | | | | |
| 27 | | | | | | | | | 430 | 500 | U B 450 | 495 | U C 520 | U C 460 | U C 440 | C | 400 | L | | | | | | |
| 28 | | | | | | | | 330 | L | 360 | 440 | 485 | 450 | 430 | 420 | 400 | 395 | H 370 | L | | | | | |
| 29 | | | | | | | L | 350 | 420 | 515 | U S 530 | 535 | 525 | 470 | 470 | 465 | 420 | 400 | L | | | | | |
| 30 | | | | | | | | L | L | L | 350 | 350 | U L 310 | L | 390 | L | L | L | | | | | | |
| MED | | | | | | | | | U 300 | 400 | 430 | 420 | 420 | 440 | 410 | 415 | 400 | U 395 | | | | | | |
| NO | | | | | | | 1 | 4 | 8 | 12 | 15 | 18 | 18 | 13 | 16 | 12 | 12 | 6 | 2 | | | | | |
| RAN | | | | | | | | | | | | | | | | | | | | | | | | |

CENTRAL RADIO PROPAGATION LABORATORY, NATIONAL BUREAU OF STANDARDS, BOULDER, COLO.

# TABLE 80
# IONOSPHERIC DATA

h'F, Km, April 1957
Station WASHINGTON Lat. 38.7N Long. 77.1W Sweep 1.0 Mc to 25.0 Mc in 13.5 Sec. 75.0W Mean Time
Manual ☐ Automatic ☒

| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | 280 | 300 | 340 | F 360 | F 350 | 330 | 275 | I C 270 | 260 | U H 235 | H 220 | 225 | H 240 | 230 | 230 | 235 | 240 | 250 | 260 | 265 | 265 | 320 | 295 | 280 |
| 02 | 270 | 280 | 310 | 360 | 380 | 360 | 315 | 260 | H 235 | H 225 | H 220 | H 220 | 220 | 230 | H 230 | B 255 | H 250 | 255 | 255 | 260 | 260 | 290 | 280 | 275 |
| 03 | 260 | 275 | 275 | 260 | 320 | 310 | 270 | 240 | 240 | 220 | H 220 | 205 | 220 | 230 | 210 | 230 | 230 | 250 | 255 | 235 | 260 | 260 | 250 | 285 |
| 04 | 310 | 300 | 315 | 295 | 295 | 300 | 275 | 230 | 220 | U H 200 | U H 200 | 210 | 210 | 225 | 220 | 230 | 230 | 240 | 250 | 240 | 245 | 250 | 260 | 300 |
| 05 | 300 | 310 | 300 | 320 | 280 | 300 | 270 | C | C | C | C | C | C | C | C | C | C | C | 270 | 265 | 280 | 315 | 300 | 330 |
| 06 | 325 | 330 | 370 | 390 | F 370 | F 360 | 290 | 370 | 235 | 230 | 230 | 215 | 230 | 220 | 235 | 230 | 230 | 255 | 275 | 265 | 260 | 295 | 300 | 300 |
| 07 | 295 | 285 | 280 | 280 | 270 | 280 | 260 | 250 | 225 | 230 | 205 | 190 | 205 | 225 | 215 | 230 | 235 | 250 | 260 | 250 | 250 | 260 | 280 | 280 |
| 08 | 290 | 290 | 330 | 350 | 330 | 320 | 300 | 250 | 235 | 230 | 230 | 235 | 245 | 230 | 230 | 240 | 250 | 250 | 260 | 280 | 250 | 260 | 265 | 300 |
| 09 | 305 | 330 | 330 | 350 | 330 | 320 | 290 | I C 265 | 240 | 230 | H 215 | H 210 | 230 | 230 | 230 | 230 | 245 | 250 | 275 | 270 | 250 | 270 | 270 | 300 |
| 10 | F 365 | F 420 | F 370 | F 335 | 425 | 380 | 335 | 290 | 275 | H 240 | 235 | H 220 | H 215 | 240 | 240 | 235 | 250 | 260 | 270 | 250 | 250 | 270 | 285 | 275 |
| 11 | 295 | 290 | 280 | 280 | 280 | 265 | 245 | 240 | 235 | 220 | 210 | 210 | 225 | I B 230 | 235 | 225 | 230 | 240 | 245 | 235 | 240 | 260 | 275 | 295 |
| 12 | 285 | 295 | 310 | 320 | 290 | 270 | 255 | 240 | 230 | 225 | 215 | 215 | 230 | 220 | 245 | I C 240 | 240 | 240 | 250 | 250 | 240 | 260 | 280 | 280 |
| 13 | 280 | 275 | 295 | 300 | 300 | 320 | 255 | 240 | 220 | 225 | 205 | 210 | 220 | 225 | 220 | 220 | 230 | 245 | 260 | 250 | 240 | 245 | 250 | 270 |
| 14 | 280 | 280 | 280 | 270 | 260 | 260 | 260 | 240 | 230 | 230 | 210 | H 210 | 210 | 225 | 220 | 230 | 230 | 230 | 260 | 250 | 250 | 250 | 270 | 270 |
| 15 | 270 | 275 | 290 | 300 | 280 | 260 | 250 | 240 | 230 | I B 225 | 220 | 210 | 215 | 225 | 220 | 230 | 230 | 245 | 265 | 275 | 250 | 250 | 240 | 290 |
| 16 | 290 | 270 | 270 | 270 | 290 | 290 | U B 330 | 265 | 245 | 245 | 220 | 225 | 230 | 220 | 230 | 235 | 240 | 250 | 270 | 260 | 260 | 270 | 280 | 280 |
| 17 | 290 | 325 | 335 | 330 | 280 | 270 | 275 | 245 | H 240 | H 220 | H 230 | H 205 | H 210 | 240 | 225 | : B | B | 270 | 295 | 295 | 275 | 270 | 270 | 280 |
| 18 | 300 | 340 | 350 | 350 | 320 | 310 | 300 | 265 | 235 | 225 | 225 | 225 | 220 | 250 | U B 220 | 230 | U B 260 | 250 | 265 | 270 | 255 | 300 | 300 | 430 |
| 19 | 500 | 380 | 380 | 390 | 390 | 380 | 300 | 250 | 240 | U B 230 | 205 | 220 | 240 | B | A | A | U A 250 | 250 | 280 | 250 | 260 | 260 | 300 | 300 |
| 20 | 310 | 330 | 335 | 335 | 330 | 335 | 280 | 245 | 245 | 225 | U B 225 | 205 | U B 220 | 220 | 225 | 215 | 225 | 240 | 265 | 270 | 260 | 290 | 300 | 300 |
| 21 | 300 | 325 | 325 | 310 | 295 | 300 | 285 | 250 | H 220 | 220 | 220 | 210 | 215 | U B 215 | 220 | 235 | 230 | 260 | 290 | 290 | 280 | 280 | 300 | 300 |
| 22 | 300 | 300 | 300 | 280 | 270 | 280 | 250 | 230 | 210 | 215 | H 200 | H 205 | H 200 | H 200 | H 220 | 230 | 235 | 235 | 250 | 250 | 250 | 255 | 300 | 315 |
| 23 | 310 | 310 | 310 | 290 | 265 | 265 | 250 | 240 | 230 | 220 | 210 | H 210 | H 215 | H 200 | 220 | 230 | 225 | U A 260 | 270 | 260 | 255 | 260 | 285 | 290 |
| 24 | 280 | 280 | 260 | 280 | 300 | 335 | 275 | 250 | 230 | 225 | 210 | U B 200 | H 205 | I B 220 | U B 235 | 235 | 230 | 250 | 265 | 295 | 300 | 320 | 270 | 300 |
| 25 | 300 | 325 | 340 | 330 | 335 | 320 | 260 | 230 | 230 | 220 | 210 | 210 | R 220 | 230 | 220 | I B 225 | 230 | 230 | 270 | 270 | 260 | 260 | 270 | U S 305 |
| 26 | 320 | 335 | 350 | 340 | 320 | 320 | 265 | 250 | 240 | 230 | 210 | H 230 | 230 | 225 | U B 230 | 235 | 245 | 250 | 265 | 300 | 300 | 270 | 270 | 280 |
| 27 | 350 | U S 400 | 355 | 305 | 310 | 315 | 280 | 250 | 235 | 225 | I B 210 | 200 | U C 205 | U C 200 | | | 240 | 240 | 280 | 270 | 290 | 270 | 270 | 310 |
| 28 | 280 | 300 | 315 | 310 | 300 | 300 | 270 | H 230 | 220 | 220 | 240 | U B 250 | 225 | 220 | 230 | 220 | 240 | 230 | 280 | 275 | 260 | 285 | U S 300 | U S 310 |
| 29 | 300 | 305 | 280 | 270 | 300 | 305 | 275 | 240 | 245 | 225 | H 210 | I A 215 | 220 | 230 | 240 | 230 | 235 | 240 | 275 | 290 | 265 | 270 | 280 | 320 |
| 30 | 320 | 340 | 310 | 280 | 260 | 270 | 250 | 240 | 230 | 220 | 205 | 200 | H 200 | 200 | H 220 | 230 | 235 | 220 | 270 | 265 | 235 | 250 | 250 | 280 |
| MED | 300 | 300 | 310 | 310 | 300 | 310 | 275 | 245 | 235 | 225 | 215 | 210 | 220 | 225 | 225 | 230 | 235 | 250 | 265 | 265 | 260 | 270 | 280 | 300 |
| NO | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 29 | 29 | 29 | 29 | 29 | 29 | 28 | 27 | 26 | 28 | 29 | 30 | 30 | 30 | 30 | 30 | 30 |
| RAN | | | | | | | | | | | | | | | | | | | | | | | | |

CENTRAL RADIO PROPAGATION LABORATORY, NATIONAL BUREAU OF STANDARDS, BOULDER, COLO.

TABLE 81

# IONOSPHERIC DATA

h'E, Km, April 1957 Station WASHINGTON Lat. 38.7N Long. 77.1W Sweep 1.0 Mc to 25.0 Mc in 13.5 Sec. 75.0W Mean Time Manual ☐ Automatic ☒

| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | | | | | | | | I C | | H | H | U B | U B | U B | U B | U B | U B | | | | | | | |
| | | | | | | | 131 | 121 | 111 | 109 | 111 | 111 | 109 | 119 | 119 | 111 | 115 | 111 | 129 | | | | | |
| 02 | | | | | | | | | H | H | | | | | | I B | U B | | | | | | | |
| | | | | | | | 141 | 115 | 111 | 109 | 109 | 109 | 109 | 109 | 109 | 113 | 117 | 111 | 125 | | | | | |
| 03 | | | | | | | S | | | H | | H | H | H | | | | | | | | | | |
| | | | | | | | | 111 | 109 | 105 | 105 | 109 | 109 | 109 | 109 | 109 | 109 | 115 | 125 | | | | | |
| 04 | | | | | | | | | | | | I R | H | U B | | | | | | | | | | |
| | | | | | | | 135 | 109 | 109 | 109 | 109 | 109 | 109 | 119 | 115 | 119 | 115 | 117 | 121 | | | | | |
| 05 | | | | | | | | C | C | C | C | C | C | C | C | C | C | C | | | | | | |
| | | | | | | | 135 | | | | | | | | | | | | 121 | | | | | |
| 06 | | | | | | | | | | | | I B | | | | H | U A | | | | | | | |
| | | | | | | | 129 | 119 | 111 | 115 | 115 | 114 | 113 | 113 | 115 | 109 | 113 | 117 | 127 | | | | | |
| 07 | | | | | | | U B | | | | | U B | | | H | | | | | | | | | |
| | | | | | | | 139 | 119 | 115 | 111 | 109 | 111 | 109 | 109 | 109 | 111 | 111 | 115 | 125 | | | | | |
| 08 | | | | | | | | H | | | | U B | I B | U B | U B | | | | | | | | | |
| | | | | | | | 129 | 115 | 111 | 111 | 115 | 117 | 116 | 115 | 115 | 119 | 111 | 115 | 125 | | | | | |
| 09 | | | | | | | H | I C | H | H | | | | U B | U B | H | H | | H | | | | | |
| | | | | | | | 129 | 119 | 109 | 111 | 109 | 109 | 109 | 111 | 109 | 109 | 109 | 109 | 121 | | | | | |
| 10 | | | | | | | | H | H | H | | | | | | | | | | | | | | |
| | | | | | | | 119 | 113 | 109 | 105 | 109 | 111 | 115 | 109 | 109 | 109 | 109 | 115 | 121 | | | | | |
| 11 | | | | | | | | H | H | | | | | | | | | | H | | | | | |
| | | | | | | | 119 | 117 | 111 | 111 | 107 | 111 | 113 | 111 | 109 | 109 | 109 | 109 | 129 | | | | | |
| 12 | | | | | | | | | | | | H | H | U B | B | C | | | | | | | | |
| | | | | | | | 119 | 111 | 109 | 111 | 105 | 101 | 101 | 117 | | | 109 | 111 | 115 | | | | | |
| 13 | | | | | | | H | | | | | H | | | U B | U B | | | | | | | | |
| | | | | | | | 115 | 111 | 109 | 105 | 109 | 111 | 113 | 109 | 111 | 111 | 111 | 115 | 125 | | | | | |
| 14 | | | | | | | | | H | H | | | U B | U B | U B | | | | H | | | | | |
| | | | | | | | 119 | 111 | 109 | 109 | 109 | 109 | 109 | 119 | 115 | 111 | 105 | 109 | 121 | | | | | |
| 15 | | | | | | | H | H | H | B | B | H | H | | | H | | H | | | | | | |
| | | | | | | | 121 | 109 | 109 | | | 109 | 107 | 105 | 105 | 109 | 101 | 111 | 119 | | | | | |
| 16 | | | | | | | B | U B | U B | U B | | | U A | | H | H | | | H | | | | | |
| | | | | | | | | 111 | 111 | 111 | 109 | 109 | 105 | 109 | 103 | 105 | 111 | 119 | 119 | | | | | |
| 17 | | | | | | | H | H | H | | U B | | | | B | B | B | U B | H | U S | | | | |
| | | | | | | | 125 | 109 | 109 | 109 | 111 | 109 | 109 | 109 | | | | 119 | 119 | 121 | | | | |
| 18 | | | | | | | B | | U B | | | B | B | B | | | I B | | | | | | | |
| | | | | | | | | 111 | 113 | 107 | 109 | | | | 109 | 115 | 113 | 111 | 121 | | | | | |
| 19 | | | | | | | U R | | | | U B | | | I B | | | | H | H | | | | | |
| | | | | | | | 119 | 109 | 111 | 111 | 109 | 109 | 109 | 109 | 109 | 101 | 101 | 101 | 121 | | | | | |
| 20 | | | | | | | A | | U B | U B | U B | U B | U B | | U B | U B | U B | U B | U B | | | | | |
| | | | | | | | | 111 | 109 | 111 | 111 | 109 | 105 | 109 | 109 | 109 | 109 | 111 | 111 | | | | | |
| 21 | | | | | | | | H | U B | | | U B | U B | U B | U B | U B | | B | U S | | | | | |
| | | | | | | | 119 | 115 | 109 | 111 | 111 | 111 | 115 | 115 | 115 | 111 | 109 | | 135 | | | | | |
| 22 | | | | | | | | | | | U B | | U B | U B | | | U B | U B | | | | | | |
| | | | | | | | 119 | 111 | 111 | 109 | 115 | 109 | 105 | 103 | 101 | 119 | 117 | 115 | 119 | | | | | |
| 23 | | | | | | | H | | | | | U B | U B | U B | U B | U B | U B | | | | | | | |
| | | | | | | | 115 | 115 | 109 | 103 | 101 | 109 | 109 | 109 | 111 | 113 | 117 | 111 | 119 | | | | | |
| 24 | | | | | | | B | U B | I B | U B | U B | U B | | | B | B | | | | | | | | |
| | | | | | | | | 109 | 110 | 111 | 115 | 111 | 101 | | | 101 | 109 | 119 | B | | | | | |
| 25 | | | | | | | B | U B | U B | U B | I B | U B | | U B | R | B | U B | U B | B | | | | | |
| | | | | | | | | 109 | 103 | 111 | 115 | 119 | 101 | 111 | | | 119 | 111 | | | | | | |
| 26 | | | | | | | | | I A | | | | B | B | B | B | B | | B | | | | | |
| | | | | | | | 111 | 109 | 109 | 109 | 109 | 109 | | | | | | 119 | | | | | | |
| 27 | | | | | | | | | U B | | I B | | C | C | C | C | | U B | C | | | | | |
| | | | | | | | 111 | 105 | 109 | 105 | 103 | 101 | | | | | 109 | 111 | | | | | | |
| 28 | | | | | | | | U B | U B | | U B | I B | U B | | I B | U B | I B | U B | S | | | | | |
| | | | | | | | 125 | 111 | 111 | 109 | 109 | 108 | 107 | 111 | 115 | 119 | 114 | 109 | | | | | | |
| 29 | | | | | | | H | H | | | | | | | | | | | | | | | | |
| | | | | | | | 119 | 109 | 105 | 103 | 109 | 109 | 109 | 103 | 107 | 109 | 105 | 105 | 117 | | | | | |
| 30 | | | | | | | H | | | | | U B | U A | U A | | | | H | | | | | | |
| | | | | | | | 119 | 109 | 109 | 105 | 103 | 109 | 103 | 105 | 109 | 109 | 109 | 109 | 119 | | | | | |
| MED | | | | | | | 119 | 111 | 109 | 109 | 109 | 109 | 109 | 109 | 109 | 110 | 109 | 111 | 121 | | | | | |
| NO | | | | | | | 24 | 29 | 29 | 28 | 28 | 28 | 26 | 25 | 23 | 24 | 27 | 28 | 25 | 1 | | | | |
| RAN | | | | | | | | | | | | | | | | | | | | | | | | |

CENTRAL RADIO PROPAGATION LABORATORY, NATIONAL BUREAU OF STANDARDS, BOULDER, COLO.

TABLE 82

# IONOSPHERIC DATA

h'Es, Km, April 1957
Station WASHINGTON Lat. 38.7N Long. 77.1W Sweep 1.0 Mc to 25.0 Mc in 13.5 Sec. 75.0W Mean Time
Manual ☐ Automatic ☒

| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | S | S | E | E | E | S | G | C | G | G | G | B | B | B | G | B | G | G | 141 | 119 | 119 | | S | S |
| 02 | S | S | S | S | S | S | G | G | G | G | G | G | B | B | B | B | G | G | G | S | S | 109 | S | S |
| 03 | S | S | S | S | S | S | B | 131 | 125 | G | 103 | G | G | G | G | G | G | G | G | S | S | 111 | S | S |
| 04 | S | S | S | S | S | S | G | G | G | 111 | 115 | G | B | G | G | G | G | G | G | S | 111 | 109 | S | S |
| 05 | S | S | S | S | S | S | G | C | C | C | C | C | C | C | C | C | C | C | G | S | S | S | S | S |
| 06 | S | S | S | S | S | S | G | G | G | G | G | B | G | G | G | 115 | 119 | 121 | G | S | S | S | S | S |
| 07 | S | S | S | S | S | S | G | G | G | 115 | G | G | G | G | G | G | G | G | G | S | S | S | S | S |
| 08 | S | S | S | S | S | S | G | G | 127 | 119 | 119 | G | B | B | B | 121 | 131 | G | G | B | S | S | S | S |
| 09 | S | S | S | S | S | S | G | C | G | G | G | G | G | B | G | G | G | G | G | S | S | S | S | S |
| 10 | S | U S 165 | 131 | 129 | S | S | G | G | G | G | G | G | G | G | G | G | G | G | G | B | S | S | S | S |
| 11 | S | S | S | S | 125 | S | 119 | G | G | G | G | G | G | B | G | G | G | G | G | 123 | S | S | S | S |
| 12 | S | S | S | S | S | S | 129 | G | G | G | 119 | G | G | G | G | C | G | G | 137 | S | S | S | S | S |
| 13 | S | S | S | S | S | S | G | G | 119 | G | G | G | 111 | G | 131 | 125 | G | 149 | 121 | S | S | S | S | S |
| 14 | S | S | S | 103 | 121 | S | 121 | G | G | G | G | G | 115 | G | G | G | G | G | G | S | S | S | S | S |
| 15 | S | S | S | S | S | S | G | G | G | B | B | G | G | G | G | G | G | G | G | S | S | S | S | S |
| 16 | S | S | S | S | S | S | B | 110 | G | G | G | G | 103 | G | G | G | G | G | G | B | S | S | S | S |
| 17 | S | S | S | 129 | S | S | G | G | G | G | G | G | G | 115 | B | B | B | G | G | G | S | S | S | S |
| 18 | S | S | S | S | S | S | G | 167 | 135 | 131 | 119 | U B 115 | B | 119 | G | G | B | G | G | B | S | S | S | S |
| 19 | S | 139 | S | S | S | S | G | G | G | G | G | G | G | 109 | 119 | 109 | 111 | 111 | 151 | 131 | S | S | S | S |
| 20 | S | S | S | S | S | S | 119 | G | G | G | G | G | G | G | 129 | 125 | G | G | G | S | S | S | S | S |
| 21 | S | S | S | S | S | S | G | G | G | G | 101 | G | G | G | G | G | G | B | G | B | B | S | S | S |
| 22 | S | S | S | S | S | S | G | 109 | 115 | G | G | G | G | G | G | 135 | G | 115 | G | B | S | S | S | 109 |
| 23 | S | S | S | S | 119 | S | G | G | G | G | G | G | 113 | 111 | G | G | 131 | 119 | 115 | 115 | S | S | S | S |
| 24 | S | S | S | S | S | B | B | B | B | B | B | B | B | B | B | G | B | G | B | B | S | 105 | S | S |
| 25 | S | S | S | S | S | S | B | G | G | B | B | B | B | B | B | B | G | G | B | B | S | S | S | S |
| 26 | S | S | S | S | S | S | G | G | 101 | G | G | G | B | B | B | B | B | G | G | B | B | S | S | S |
| 27 | S | S | S | S | S | S | G | G | G | G | G | G | C | C | C | C | G | G | C | S | S | S | S | S |
| 28 | S | S | S | S | S | 119 | G | 141 | 119 | 109 | 119 | B | B | B | B | B | B | B | S | B | S | S | S | S |
| 29 | S | S | S | S | S | S | G | G | G | G | G | 113 | 139 | G | 119 | G | G | G | G | B | S | S | S | S |
| 30 | S | S | S | S | S | S | 145 | 141 | 129 | 125 | 117 | G | B | 109 | G | G | G | G | B | B | S | S | S | S |
| MED | | | | | | | 121 | 136 | 122 | 117 | 118 | | 113 | 111 | | 123 | | 119 | 137 | | | | | |
| NO | | 2 | 1 | 3 | 3 | 1 | 5 | 6 | 8 | 6 | 8 | 2 | 5 | 5 | 4 | 6 | 4 | 5 | 5 | 4 | 2 | 4 | | 1 |
| RAN | | | | | | | | | | | | | | | | | | | | | | | | |

TABLE 83

# IONOSPHERIC DATA

(M3000)F2, April 1957
Station WASHINGTON Lat. 38.7N Long. 77.1W Sweep 1.0 Mc to 25.0 Mc in 13.5 Sec. 75.0W Mean Time
Manual ☐ Automatic ☒

| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | 260 | U F 270 | S | F | U F 260 | U F 260 | F 290 | C | 320 | 280 | 260 | 260 | 250 | 255 | 250 | 255 | 260 | 270 | U S 270 | 270 | 260 | 255 | 250 | 270 |
| 02 | U F 270 | U F 275 | 250 | F 240 | U F 235 | U F 240 | 275 | 290 | 300 | 285 | 275 | 275 | 270 | 265 | 255 | 260 | 260 | 270 | 275 | 275 | 260 | 260 | 270 | 275 |
| 03 | U F 285 | U F 270 | U F 270 | U F 270 | 250 | 245 | 290 | 310 | 290 | 290 | 280 | 270 | 270 | 255 | 260 | 255 | 255 | 265 | 270 | 275 | 260 | 265 | 270 | U F 245 |
| 04 | U F 260 | U F 250 | U F 255 | F 260 | U F 260 | F 250 | 280 | 295 | 290 | U R 275 | 275 | 270 | 265 | 260 | 260 | 260 | 265 | 275 | 285 | 290 | 280 | 270 | 270 | 265 |
| 05 | 250 | 260 | F 260 | 250 | U F 260 | U F 265 | U F 305 | C | C | C | C | C | C | C | C | C | C | C | 290 | 290 | 270 | 250 | F 270 | F 250 |
| 06 | U F 260 | F 250 | U F 240 | U F 240 | F 235 | U F 250 | U F 260 | F 300 | 280 | 265 | 280 | 275 | 270 | 270 | 275 | 275 | 285 | 280 | 290 | 280 | 265 | 270 | U S 290 | U F 280 |
| 07 | F 280 | F 290 | U F 290 | F 290 | F 270 | F 270 | 295 | 315 | 300 | 285 | 290 | 275 | 275 | 275 | 270 | 270 | 270 | 275 | 280 | 280 | 280 | 265 | 270 | U S 285 |
| 08 | 270 | 270 | 240 | 240 | 240 | 250 | 270 | 285 | 275 | 275 | 260 | 265 | 260 | 265 | 260 | 255 | 260 | 260 | 270 | 275 | 270 | 265 | 255 | 250 |
| 09 | 260 | 255 | 235 | 240 | 255 | 255 | 280 | C | 285 | 270 | 255 | 255 | 260 | 265 | 260 | 260 | 260 | 260 | 270 | 270 | 270 | 265 | 260 | 240 |
| 10 | U F 260 | U F 250 | U F 250 | U F 265 | U F 245 | F 250 | 250 | 280 | H 230 | 270 | 255 | 245 | 245 | 245 | 260 | 265 | 270 | 275 | 280 | F 280 | 265 | 255 | 260 | 270 |
| 11 | 255 | 270 | U F 260 | F 265 | F 265 | 280 | 315 | 310 | 300 | H 275 | 265 | 275 | 275 | 275 | 275 | 280 | 275 | 280 | 290 | 290 | 285 | 275 | 265 | 275 |
| 12 | 275 | 265 | 250 | 250 | 270 | F 280 | 305 | 305 | 300 | 295 | 285 | 285 | 275 | 270 | 265 | C | 265 | 270 | 280 | 275 | 275 | 260 | 255 | 260 |
| 13 | 270 | 265 | 250 | 250 | 250 | 240 | 290 | 320 | 300 | 305 | 280 | 280 | 270 | 270 | 270 | 270 | 275 | 275 | 280 | 285 | U S 280 | 280 | 280 | 275 |
| 14 | F 275 | 270 | F 270 | F 280 | F 270 | F 280 | 300 | 305 | 300 | 290 | 285 | 275 | 280 | 275 | 270 | 275 | 270 | 280 | 280 | 290 | 270 | 270 | 270 | 280 |
| 15 | 275 | 270 | F 260 | F 260 | F 260 | 275 | 290 | 290 | 305 | 295 | 280 | 275 | 275 | 265 | 265 | 265 | 265 | 260 | 265 | U S 280 | 280 | 270 | 270 | 255 |
| 16 | 260 | 265 | 255 | 255 | 250 | 255 | 275 | 275 | 265 | 265 | 265 | U S 270 | 265 | 260 | 265 | 270 | 270 | 270 | 275 | 270 | 260 | U S 270 | 260 | 245 |
| 17 | 250 | 245 | 240 | 245 | 260 | 270 | 285 | 290 | 260 | 240 | 240 | 245 | 250 | 250 | 250 | 245 | 245 | 240 | 255 | 260 | 275 | 250 | F 260 | 245 |
| 18 | 250 | 240 | 235 | 230 | 240 | 260 | 265 | 275 | 290 | 285 | J R 275 | 280 | 270 | 255 | 250 | 255 | 260 | 260 | 265 | U S 270 | 270 | 255 | 255 | S |
| 19 | U S 210 | F 240 | U F 250 | U S 250 | F 240 | 250 | 270 | 280 | H 280 | 250 | 240 | 235 | 235 | 240 | 245 | A | 265 | 270 | 270 | 285 | 260 | 270 | 260 | 260 |
| 20 | F 260 | F 250 | U S 245 | U F 270 | U F 260 | F 260 | 275 | 285 | 270 | 240 | 260 | 250 | 260 | 255 | 260 | 265 | 270 | 260 | 275 | 270 | 260 | 265 | U S 260 | 260 |
| 21 | 260 | 255 | 245 | F | F 260 | 270 | 280 | 270 | 260 | 260 | 250 | 255 | 265 | 260 | 255 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 265 | 260 |
| 22 | F 260 | F 270 | F 260 | F 275 | U F 270 | F 290 | F 310 | 310 | 290 | 280 | 260 | 260 | 265 | 265 | 255 | 255 | 260 | 275 | 280 | 285 | 285 | 270 | 260 | 255 |
| 23 | 260 | 250 | F 260 | F 270 | F 280 | F 285 | F 290 | 300 | 285 | 280 | 265 | 265 | 265 | 270 | 260 | 260 | 260 | 265 | 265 | 275 | 280 | 260 | 265 | 255 |
| 24 | 250 | 265 | 270 | 265 | 250 | 245 | 280 | 290 | 275 | 255 | 240 | 275 | 230 | 235 | 245 | 250 | 255 | 260 | 265 | 265 | 250 | 245 | 260 | 260 |
| 25 | 260 | 250 | 250 | F 260 | 260 | F 280 | 290 | 295 | 295 | 285 | 270 | 270 | 270 | 260 | 265 | 265 | 270 | 260 | 270 | 265 | 275 | U S 275 | 260 | 260 |
| 26 | 250 | 240 | 230 | 235 | 245 | 250 | 275 | 275 | 265 | 250 | 225 | H 230 | 245 | 240 | 240 | 235 | 240 | 245 | 255 | 250 | 255 | 255 | 250 | 250 |
| 27 | 235 | 225 | 230 | 255 | 255 | 265 | 290 | 265 | 260 | 245 | U C 255 | 250 | C | C | C | C | 260 | 265 | 275 | 270 | 260 | 270 | 265 | 265 |
| 28 | F 265 | 260 | U F 265 | J F 260 | 265 | U F 290 | 290 | 280 | 270 | 270 | 255 | U S 250 | 245 | 250 | 245 | 245 | 255 | 255 | 265 | 270 | 255 | 255 | 250 | 255 |
| 29 | 255 | 250 | 250 | 260 | U S 245 | U S 255 | 275 | 275 | 255 | H 220 | H 225 | 235 | 235 | 240 | 250 | 250 | 255 | 260 | 265 | 275 | 260 | 260 | F 255 | F 250 |
| 30 | F 255 | F 250 | F 260 | F 270 | F 285 | F 285 | 295 | 300 | 285 | 285 | 275 | 275 | 265 | 255 | 255 | 260 | 260 | U S 265 | U S 280 | U S 285 | U S 280 | 270 | 260 | 260 |
| MED | 260 | 260 | 250 | 260 | 260 | 260 | 290 | 290 | 285 | 275 | 265 | 270 | 265 | 260 | 260 | 260 | 260 | 265 | 270 | 275 | 270 | 265 | 260 | 260 |
| NO | 30 | 30 | 29 | 28 | 30 | 30 | 30 | 27 | 29 | 29 | 29 | 29 | 28 | 28 | 28 | 26 | 29 | 29 | 30 | 30 | 30 | 30 | 30 | 29 |
| RAN | | | | | | | | | | | | | | | | | | | | | | | | |

CENTRAL RADIO PROPAGATION LABORATORY, NATIONAL BUREAU OF STANDARDS, BOULDER, COLO.

TABLE 84

# IONOSPHERIC DATA

(M3000)F1, April 1957
Station WASHINGTON Lat. 38.7N Long. 77.1W Sweep 1.0 Mc to 25.0 Mc in 13.5 Sec. 75.0W Mean Time
Manual ☐ Automatic ☒

| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | | | | | | | | C | L | L | L | L | 325 | 320 | L | L | L | L | | | | | | |
| 02 | | | | | | | | L | L | L | L | L | L | L | L | L | L | L | | | | | | |
| 03 | | | | | | | | | L | L | L | L | L | L | L | L | L | L | L | | | | | |
| 04 | | | | | | | | | L | L | L | L | L | L | L | L | L | | | | | | | |
| 05 | | | | | | | | C | C | C | C | C | C | C | C | C | C | C | | | | | | |
| 06 | | | | | | | | | L | | L | L | 335 | L | L | L | L | L | | | | | | |
| 07 | | | | | | | | | L | L | L | L | L | L | L | L | L | L | | | | | | |
| 08 | | | | | | | | L | L | L | 315 | 315 | 310 | 315 | 315 | L | L | L | L | | | | | |
| 09 | | | | | | | | C | L | L | H 320 | H 320 | 320 | L | 330 | 320 | 315 | L | | | | | | |
| 10 | | | | | | | | | | H 320 | 315 | H 325 | H 305 | 310 | L | L | L | L | | | | | | |
| 11 | | | | | | | | | | L | 340 | 335 | L | L | L | L | L | | | | | | | |
| 12 | | | | | | | | | L | L | L | L | L | L | L | C | L | L | L | | | | | |
| 13 | | | | | | | | | L | L | L | L | L | L | L | L | L | L | | | | | | |
| 14 | | | | | | | | | L | L | L | L | L | L | L | L | L | L | | | | | | |
| 15 | | | | | | | | | L | B | L | L | L | L | L | L | L | L | L | | | | | |
| 16 | | | | | | | | | L | L | L | L | L | L | L | L | L | L | L | | | | | |
| 17 | | | | | | | | L | L | H 320 | H 335 | U S 345 | 340 | 360 | 325 | 325 | B | 310 | L | | | | | |
| 18 | | | | | | | | | | | | | 395 | L | L | L | L | L | | | | | | |
| 19 | | | | | | | | | L | 300 | 310 | 330 | 350 | B | A | A | U A 330 | L | | | | | | |
| 20 | | | | | | | | | L | L | H 330 | 340 | 325 | 330 | 315 | 315 | L | L | L | | | | | |
| 21 | | | | | | | | L | L | 320 | 335 | 330 | 330 | 330 | 320 | 335 | 320 | 320 | L | | | | | |
| 22 | | | | | | | | | L | L | 325 | L | 340 | 315 | 320 | 340 | L | L | L | | | | | |
| 23 | | | | | | | | L | L | L | | H 335 | H 330 | H 340 | H 335 | H 325 | L | L | L | | | | | |
| 24 | | | | | | | L | L | 340 | 320 | 330 | 350 | 350 | B | 320 | 325 | 315 | L | L | | | | | |
| 25 | | | | | | | L | L | L | L | L | L | L | L | L | 330 | 340 | L | | | | | | |
| 26 | | | | | | | | L | L | 340 | H 350 | H 325 | 345 | 335 | 335 | 330 | 335 | 310 | L | | | | | |
| 27 | | | | | | | | | H 345 | 320 | R | 330 | U C 320 | C | C | C | 330 | L | | | | | | |
| 28 | | | | | | | | L | U F 330 | 340 | 340 | U R 320 | H 310 | H 330 | 330 | 310 | 340 | 340 | L | | | | | |
| 29 | | | | | | | L | 330 | 330 | 340 | H 350 | U S 340 | 350 | 325 | 340 | 335 | 330 | 320 | L | | | | | |
| 30 | | | | | | | | L | L | L | L | H 345 | 345 | L | 325 | L | L | | | | | | | |
| MED | | | | | | | | | | 320 | 330 | 330 | 330 | 330 | 325 | 325 | 330 | 320 | | | | | | |
| NO | | | | | | | | 1 | 4 | 9 | 13 | 15 | 18 | 11 | 12 | 11 | 9 | 5 | | | | | | |
| RAN | | | | | | | | | | | | | | | | | | | | | | | | |

CENTRAL RADIO PROPAGATION LABORATORY NATIONAL BUREAU OF STANDARDS, BOULDER, COLO.

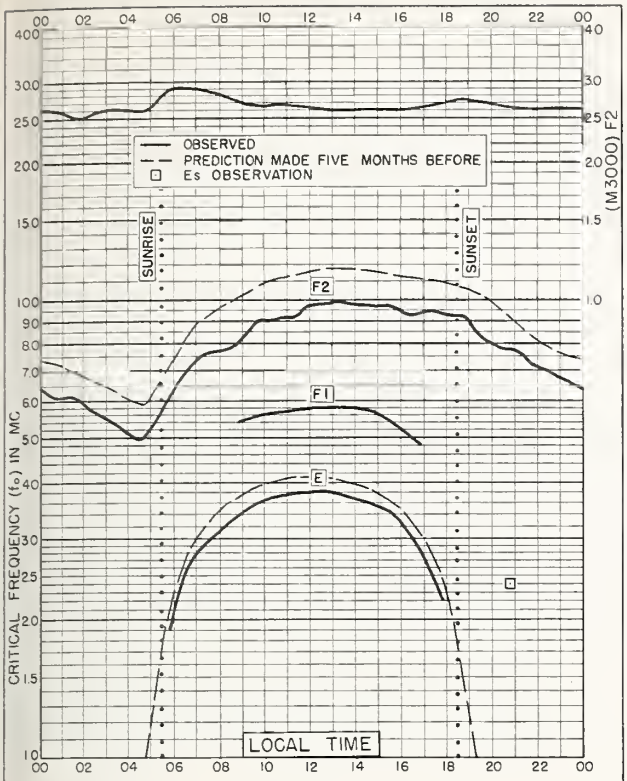



Fig. 1. WASHINGTON, D. C.
38.7°N, 77.1°W APRIL 1957

NBS 503

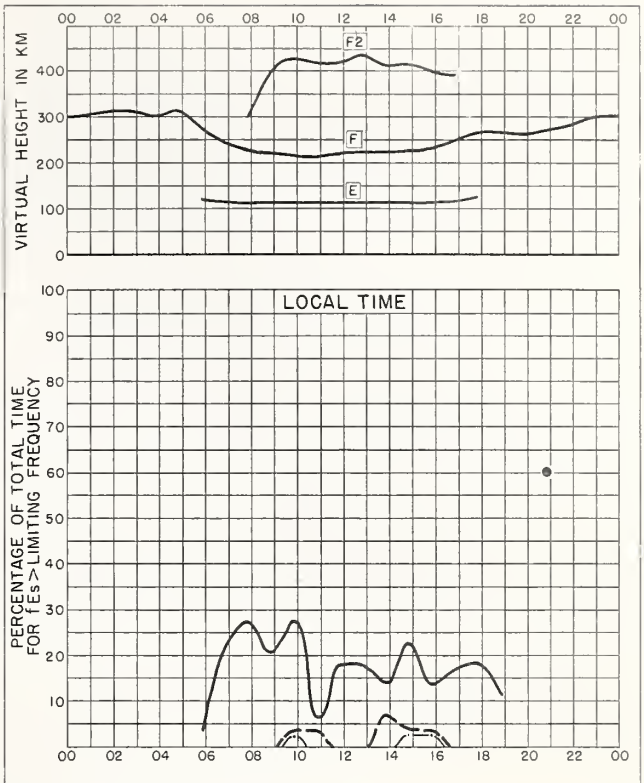



Fig. 2. WASHINGTON, D. C. APRIL 1957

NBS 490

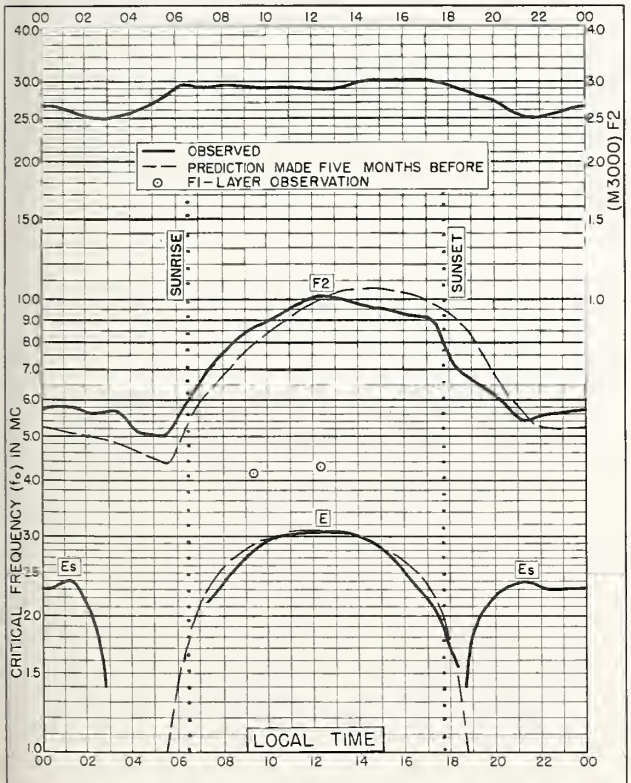



Fig. 3. LYCKSELE, SWEDEN
64.6°N, 18.8°E MARCH 1957

NBS 503

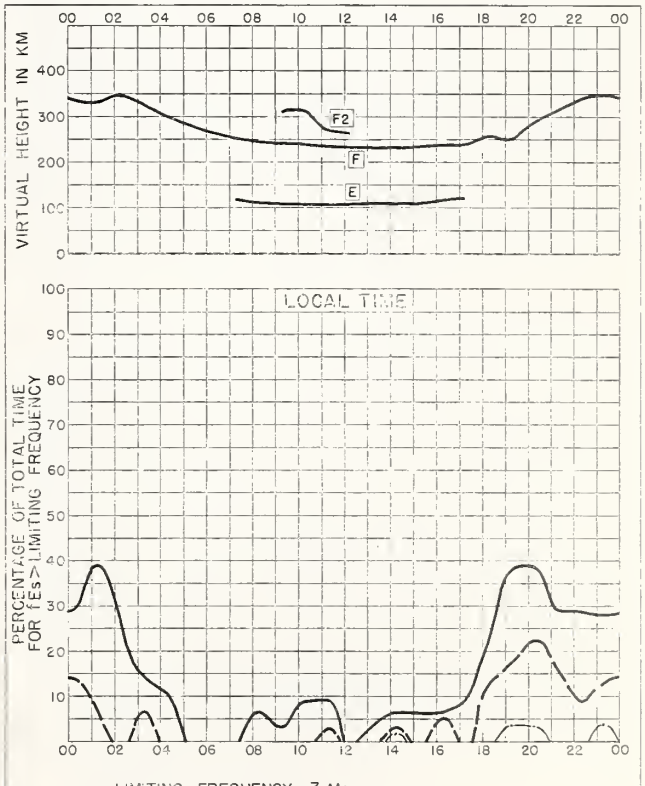



Fig. 4. LYCKSELE, SWEDEN MARCH 1957

NBS 490

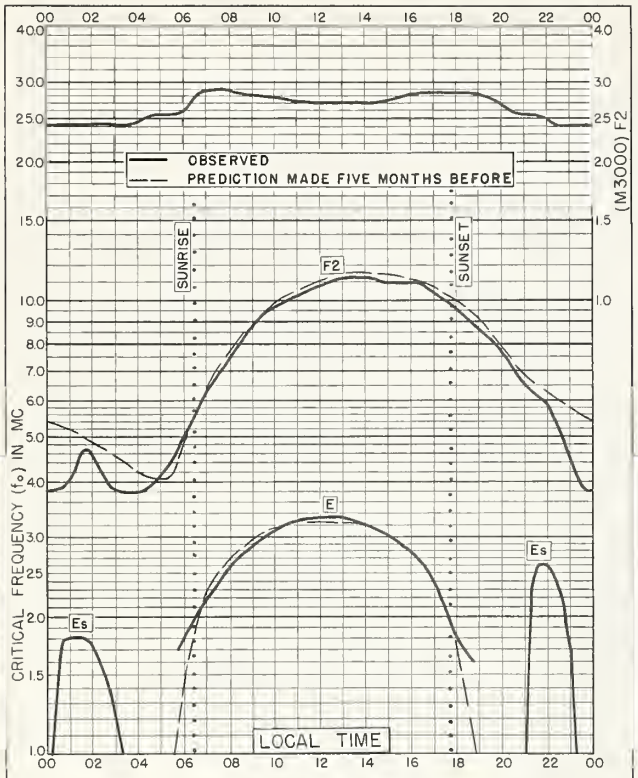



Fig. 5. OSLO, NORWAY
60.0°N, 11.1°E MARCH 1957

NBS 503

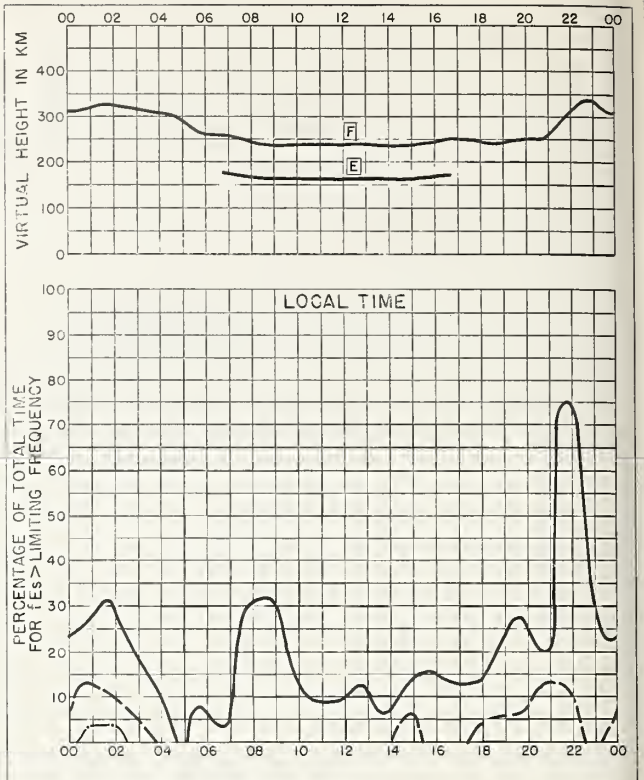



Fig. 6. OSLO, NORWAY MARCH 1957

NBS 490

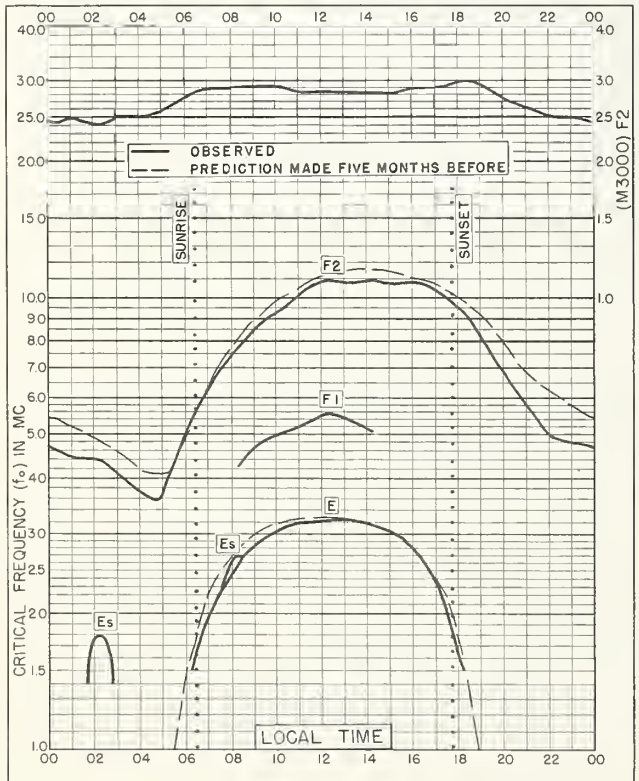



Fig. 7. UPSALA, SWEDEN
59.8°N, 17.6°E MARCH 1957

NBS 503

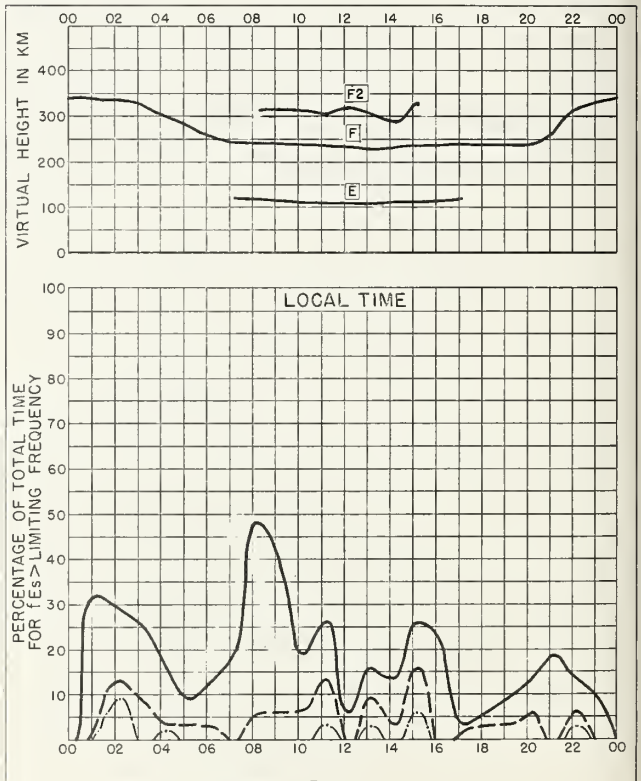



Fig. 8. UPSALA, SWEDEN MARCH 1957

NBS 490

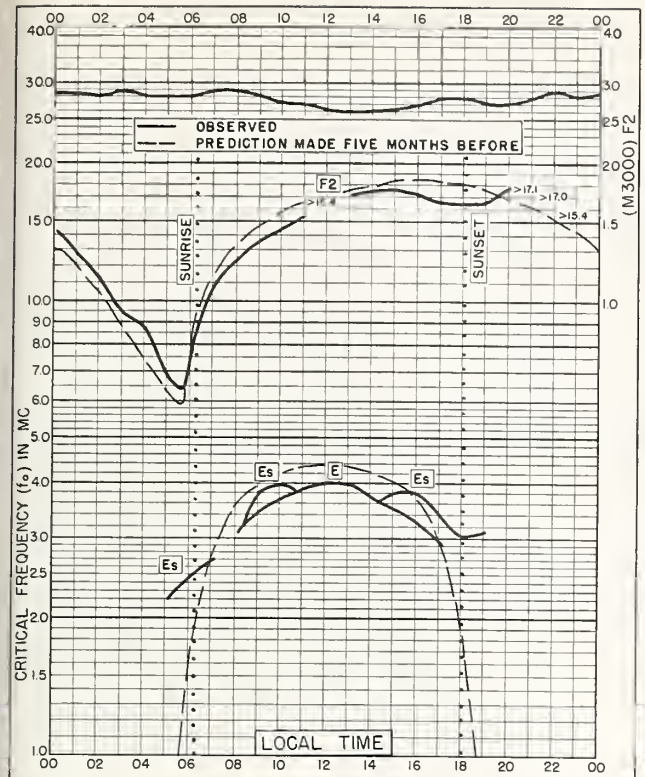



Fig. 9. FORMOSA, CHINA
25.0°N, 121.5°E MARCH 1957

NBS 503

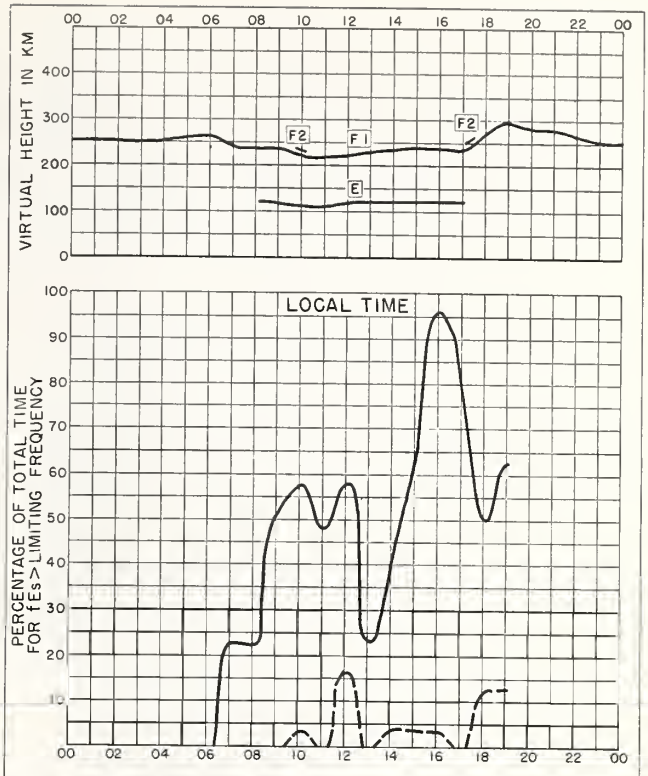



Fig. 10. FORMOSA, CHINA MARCH 1957

NBS 490

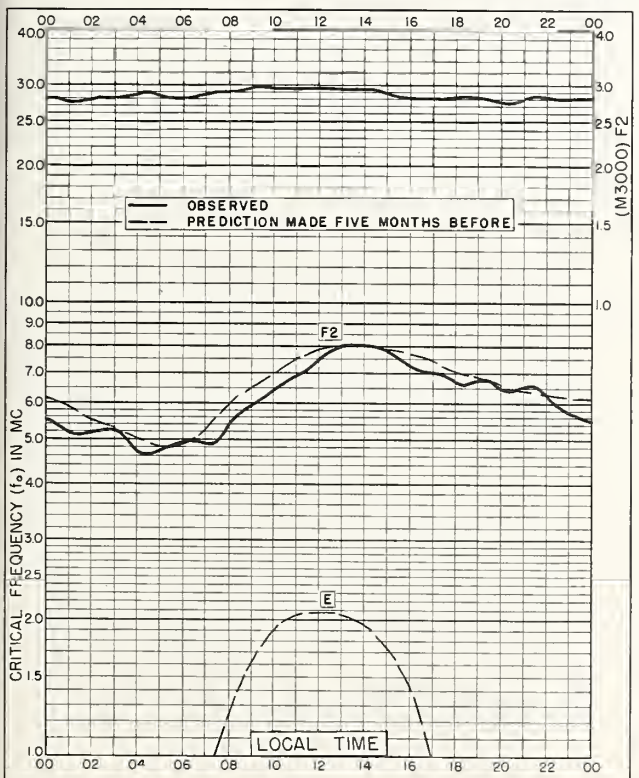



Fig. 11. THULE, GREENLAND
76.6°N, 68.7°W FEBRUARY 1957

NBS 503

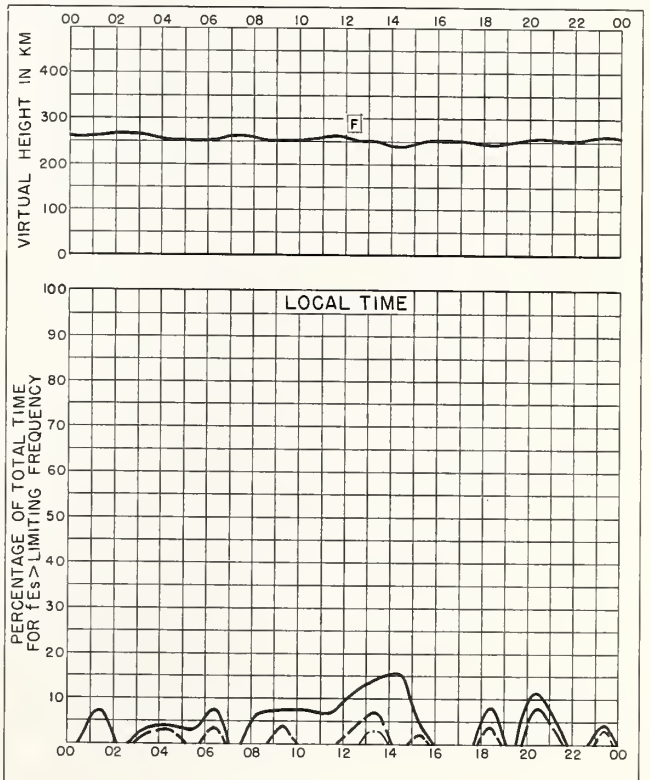



Fig. 12. THULE, GREENLAND FEBRUARY 1957

NBS 490

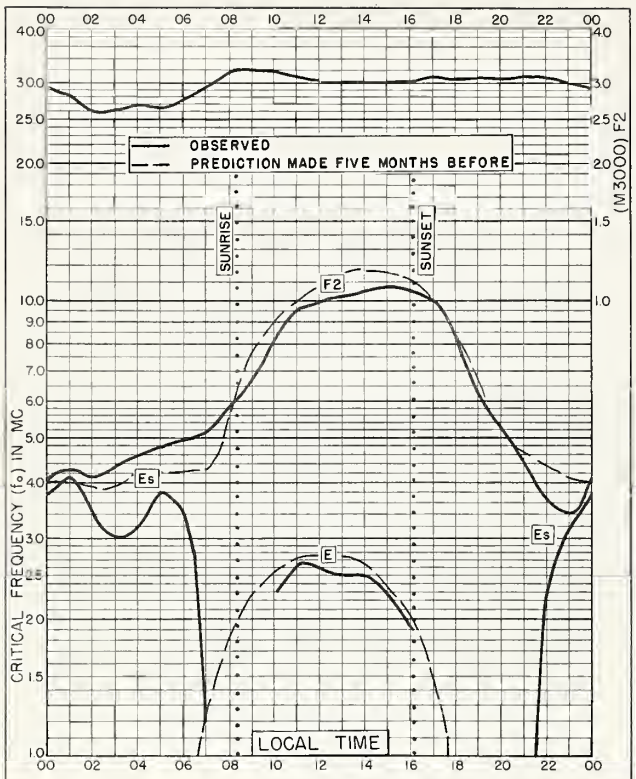



Fig. 13. FAIRBANKS, ALASKA
64.9°N, 147.8°W FEBRUARY 1957

NBS 503

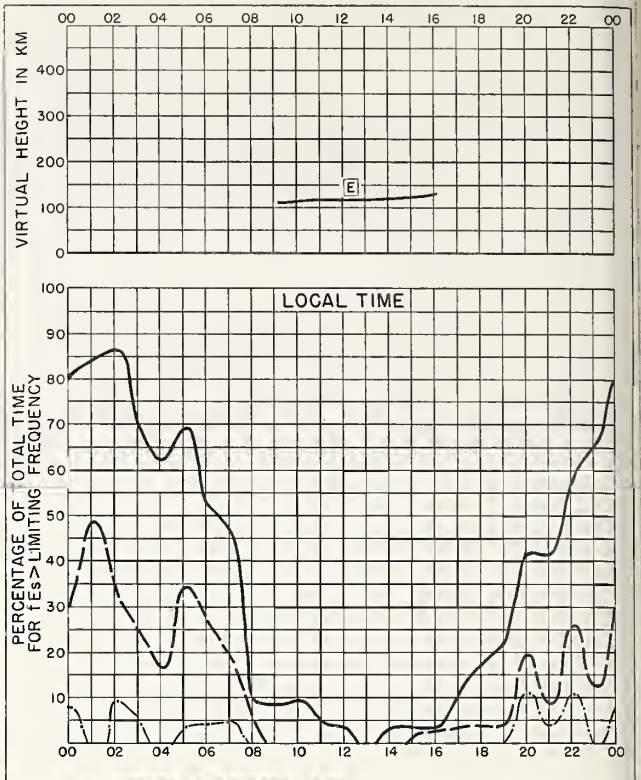



Fig. 14. FAIRBANKS, ALASKA FEBRUARY 1957

NBS 490

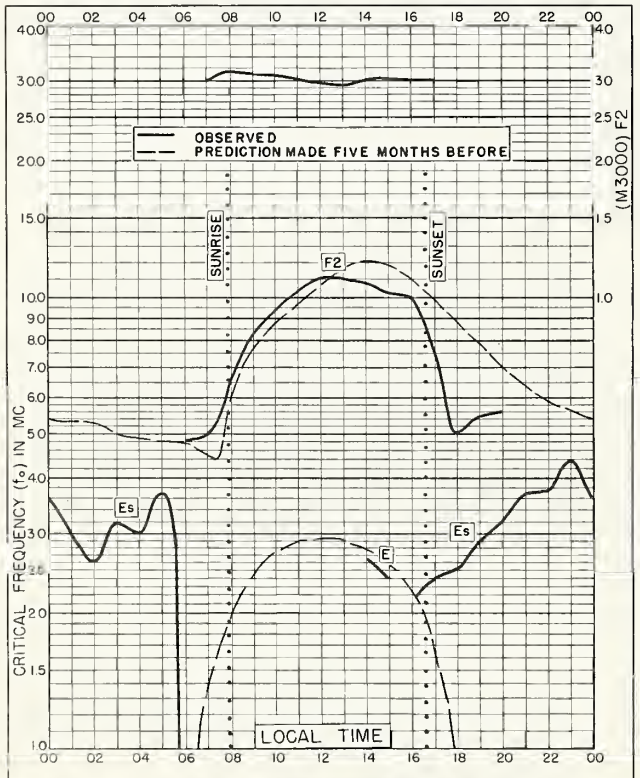



Fig. 15. NARSARSSUAK, GREENLAND
61.2°N, 45.4°W FEBRUARY 1957

NBS 503

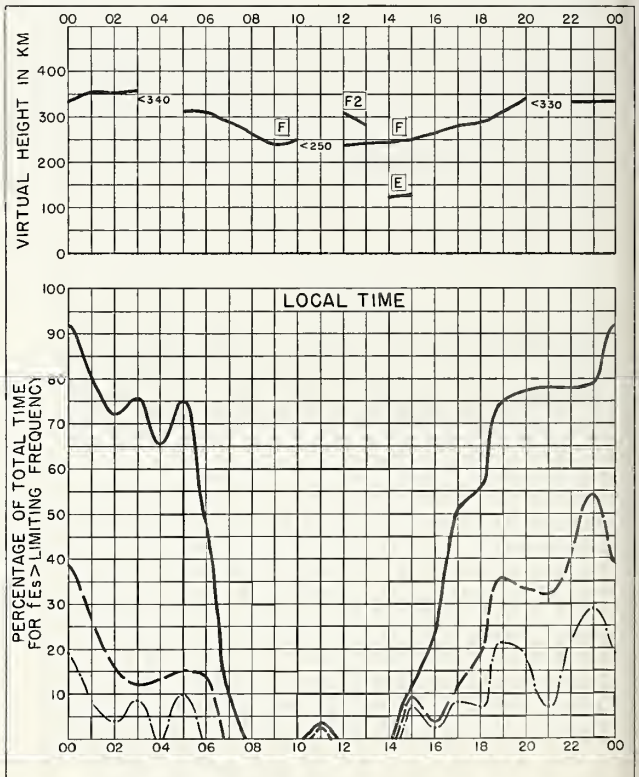



Fig. 16. NARSARSSUAK, GREENLAND FEBRUARY 1957

NBS 490

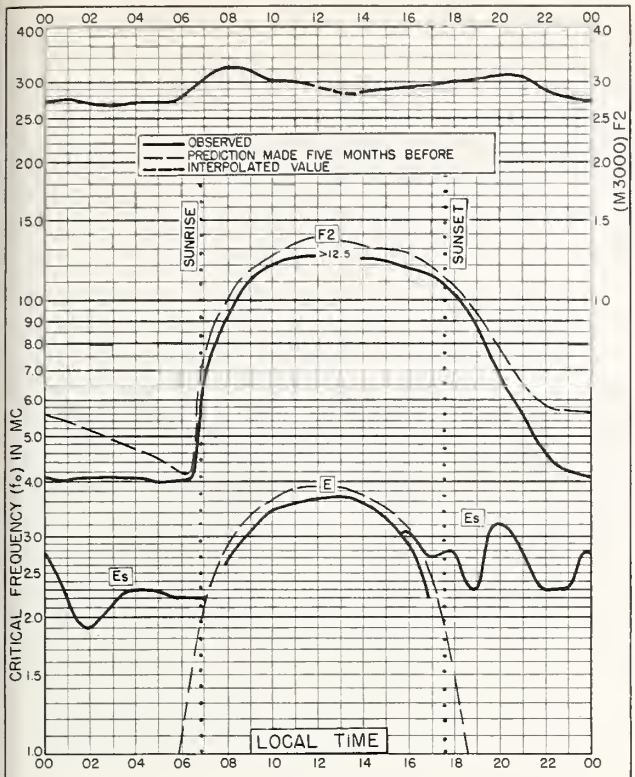
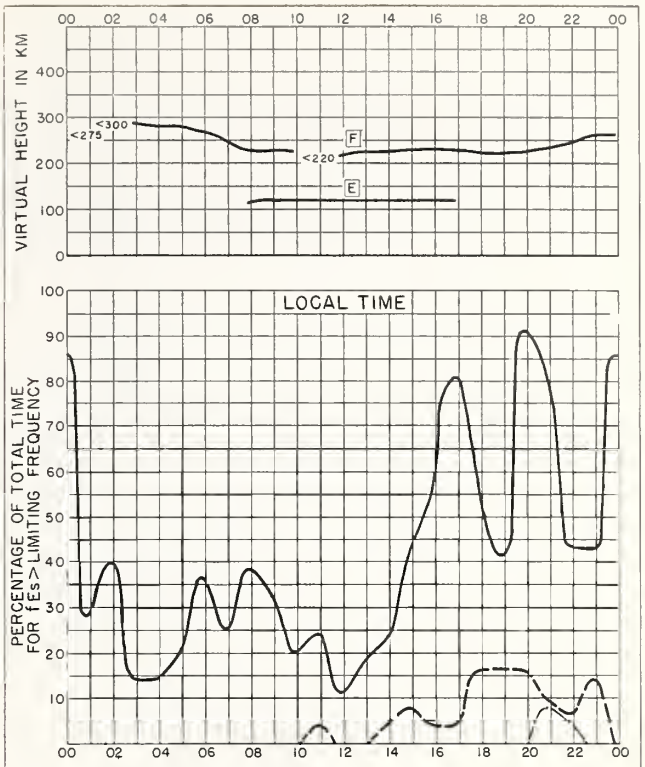



Fig. 17. SAN FRANCISCO, CALIFORNIA
37.4°N, 122.2°W FEBRUARY 1957

NBS 503




FEBRUARY 1957

Fig. 18. SAN FRANCISCO, CALIFORNIA

NBS 490

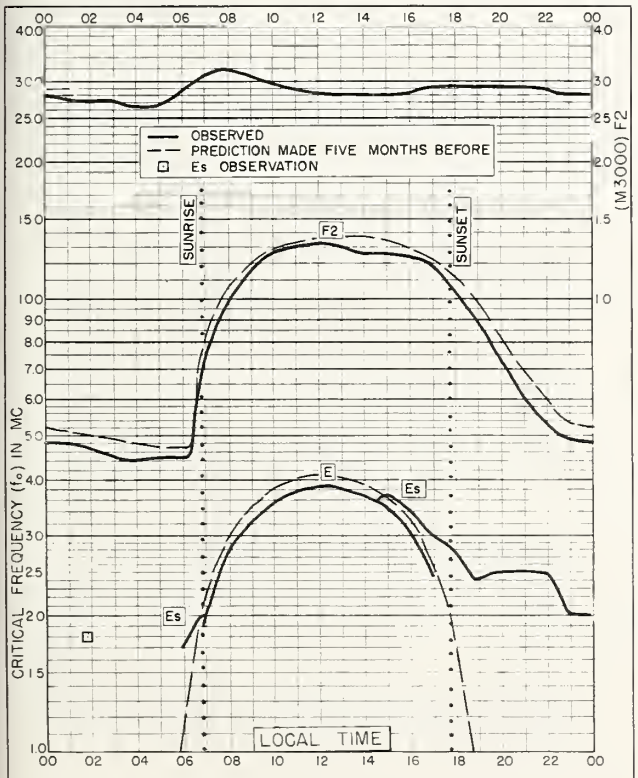
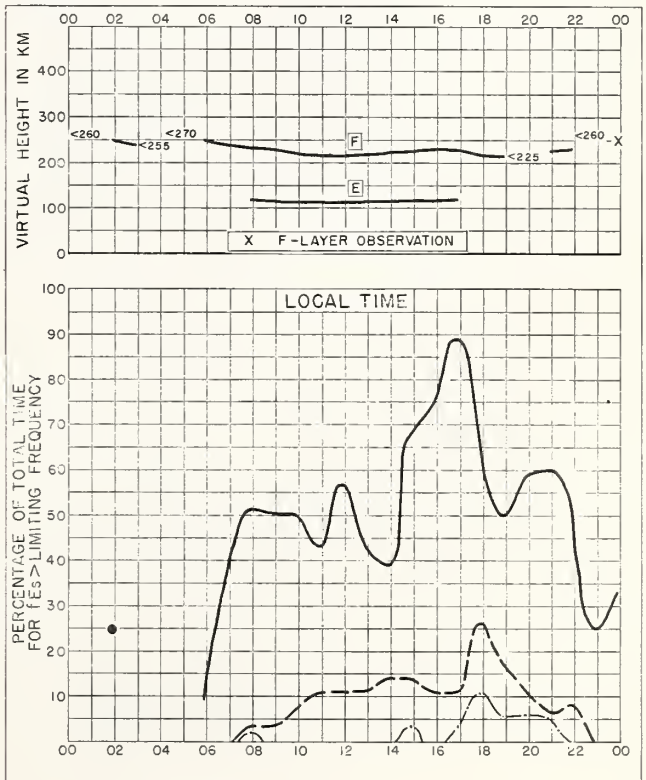



Fig. 19. WHITE SANDS, NEW MEXICO
32.3°N, 106.5°W FEBRUARY 1957

NBS 503




FEBRUARY 1957

Fig. 20. WHITE SANDS, NEW MEXICO

NBS 490

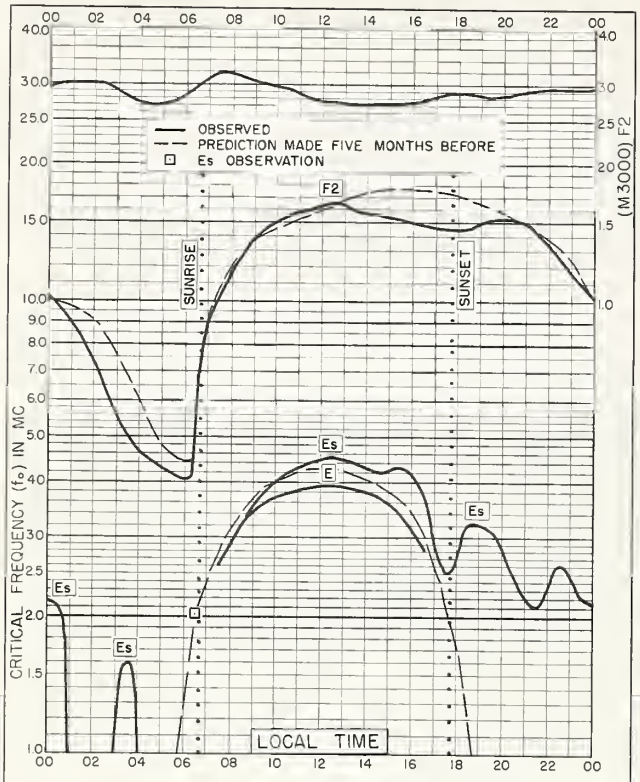



Fig. 21. OKINAWA I.
26.3°N, 127.8°E FEBRUARY 1957

NBS 503

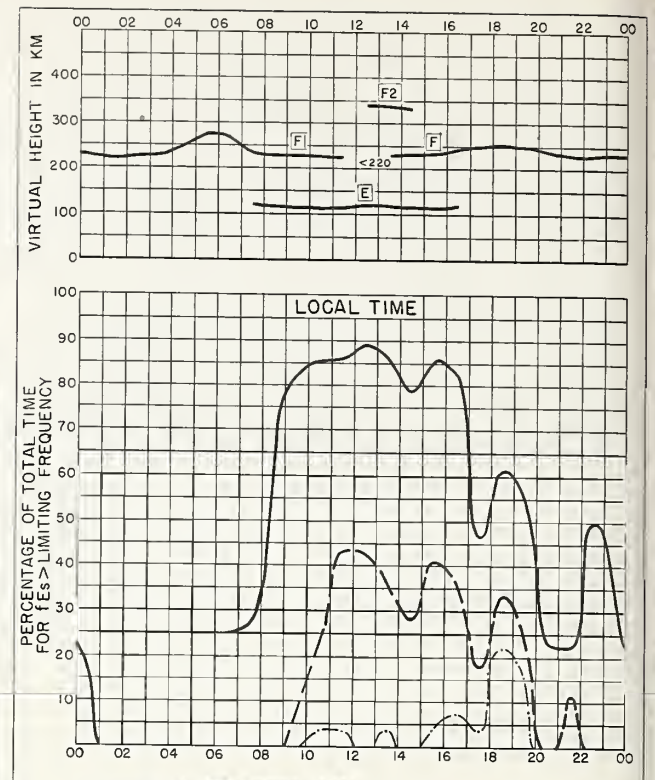



Fig. 22. OKINAWA I. FEBRUARY 1957

NBS 490

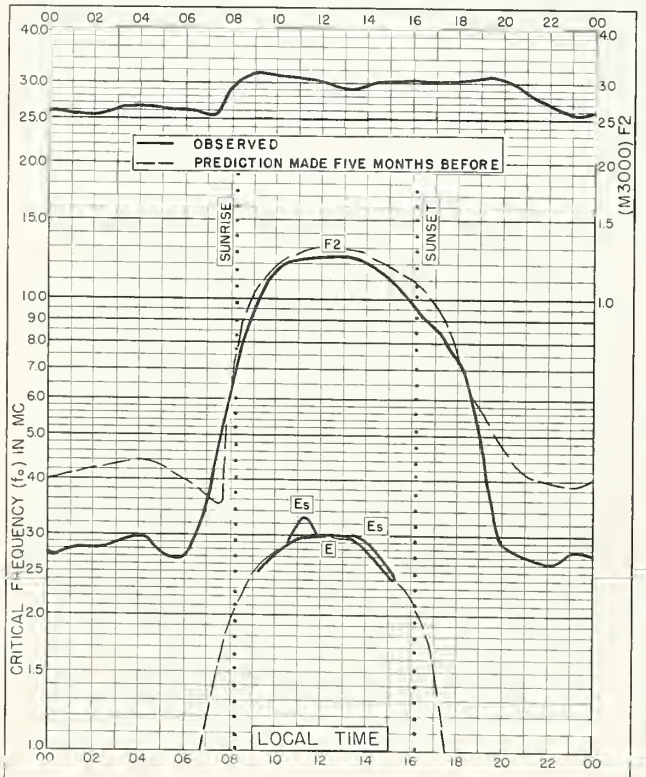



Fig. 23. ADAK, ALASKA
51.9°N, 176.6°W JANUARY 1957

NBS 503

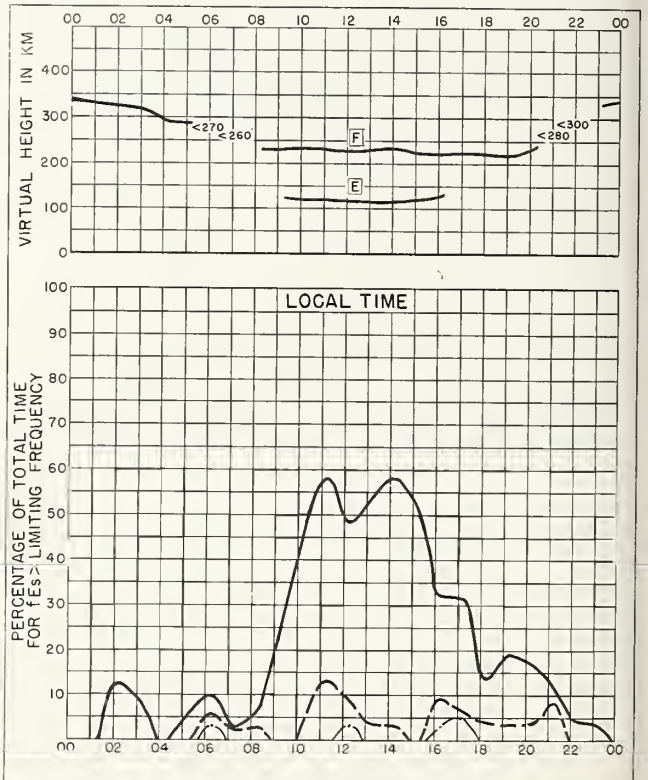



Fig. 24. ADAK, ALASKA JANUARY 1957

NBS 490

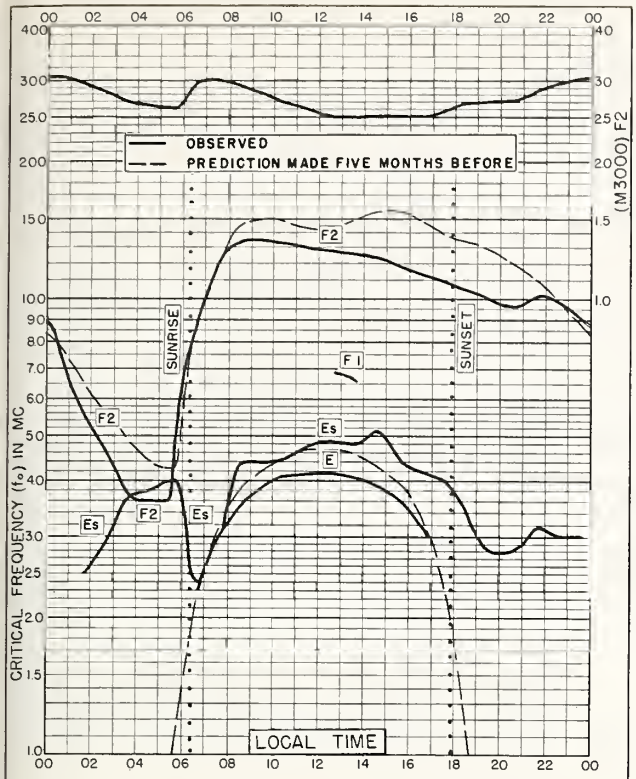



Fig. 25. PANAMA CANAL ZONE
9.4°N, 79.9°W JANUARY 1957

NBS 503

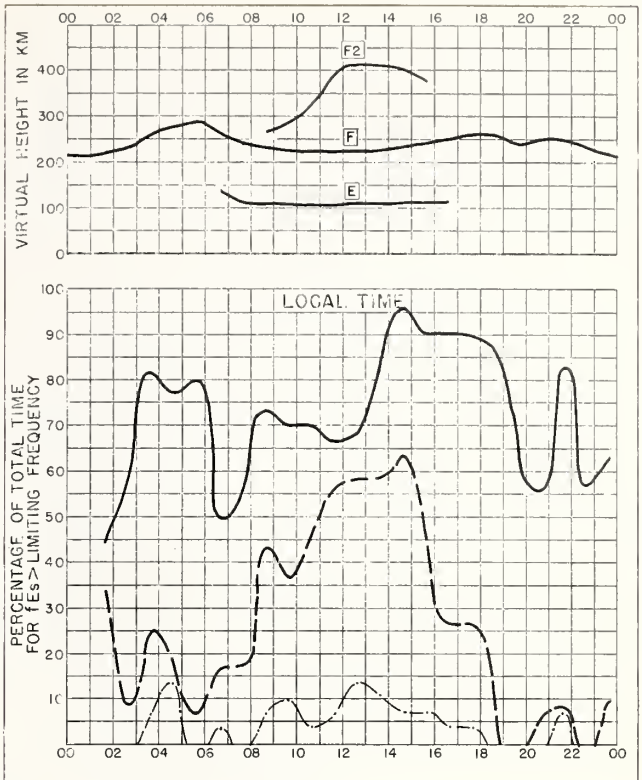



Fig. 26. PANAMA CANAL ZONE JANUARY 1957

NBS 490

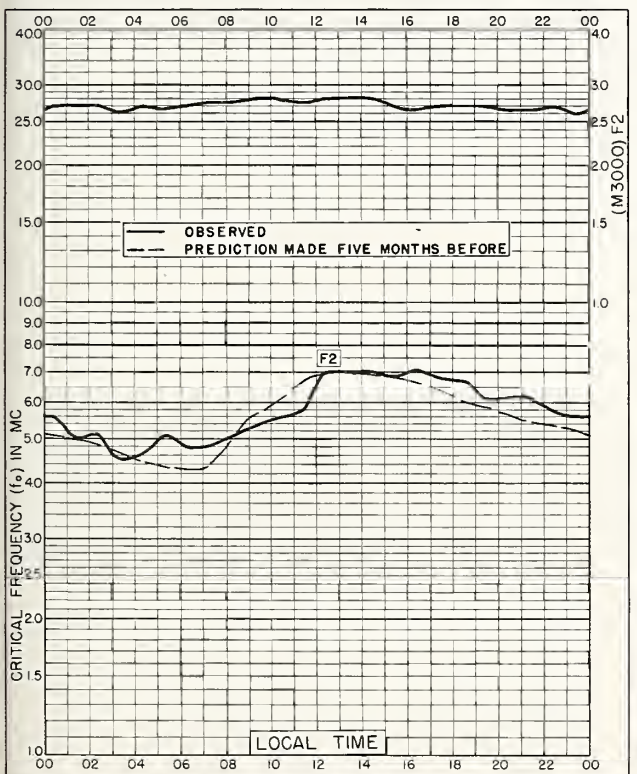



Fig. 27. THULE, GREENLAND
76.6°N, 68.7°W DECEMBER 1956

NBS 503

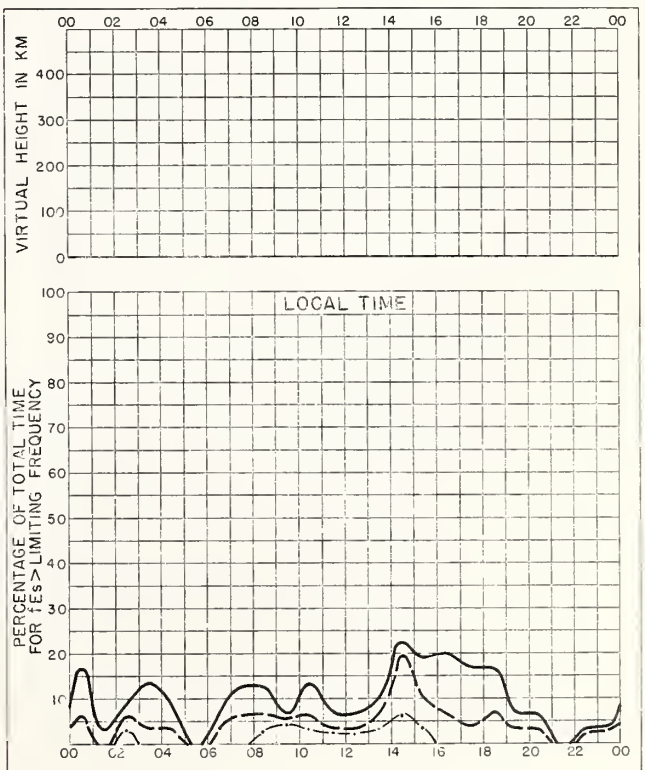



Fig. 28. THULE, GREENLAND DECEMBER 1956

NBS 490

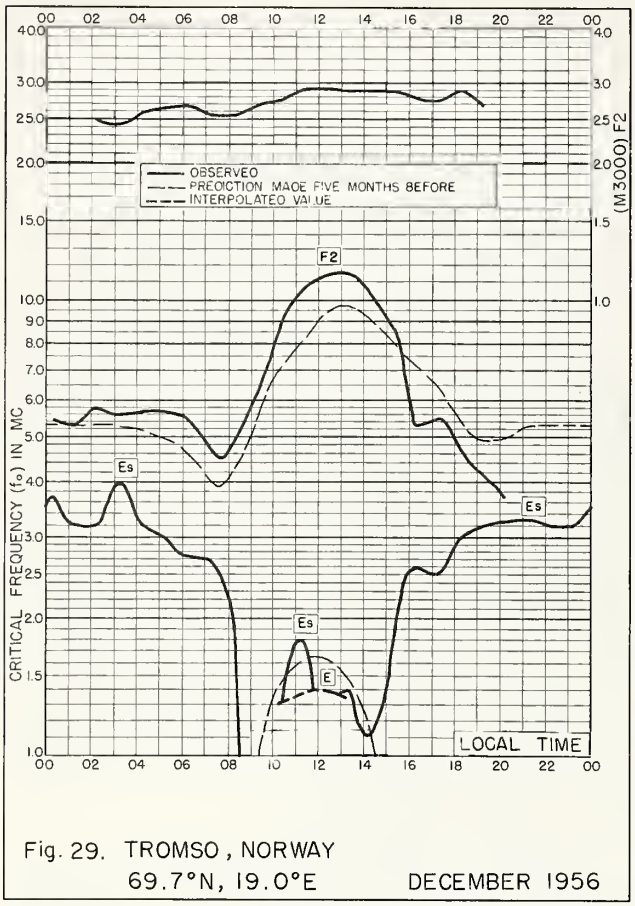



Fig. 29. TROMSO, NORWAY
69.7°N, 19.0°E DECEMBER 1956

NBS 503

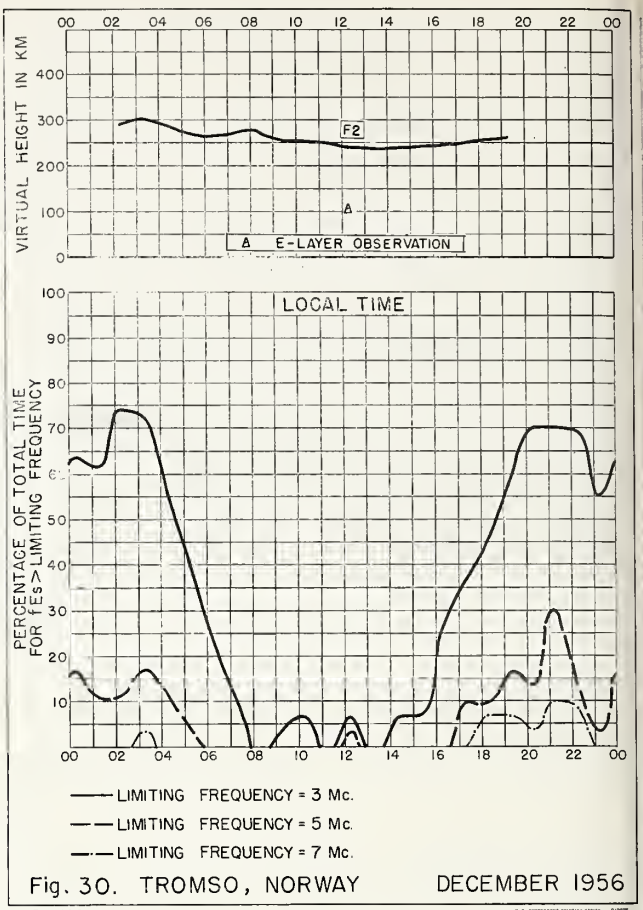



Fig. 30. TROMSO, NORWAY DECEMBER 1956

NBS 490

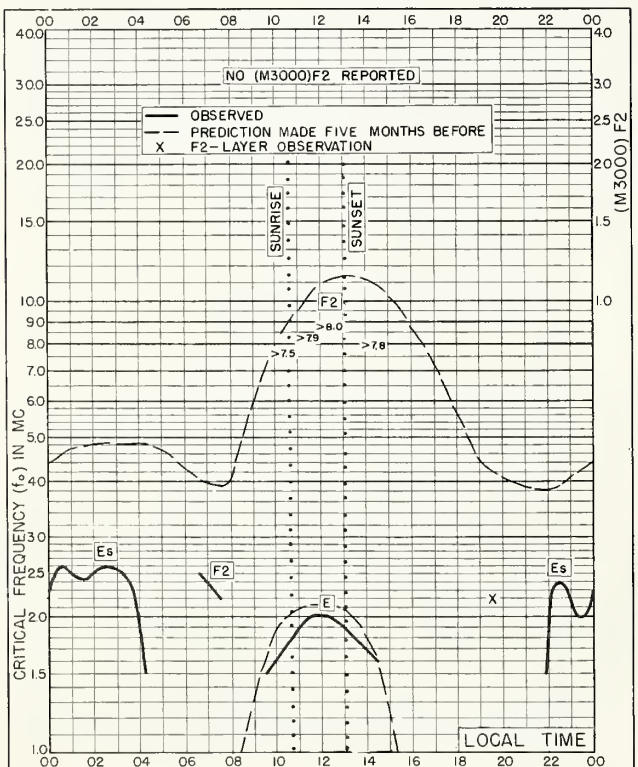



Fig. 31. LULEA, SWEDEN
65.6°N, 22.1°E DECEMBER 1956

NBS 503

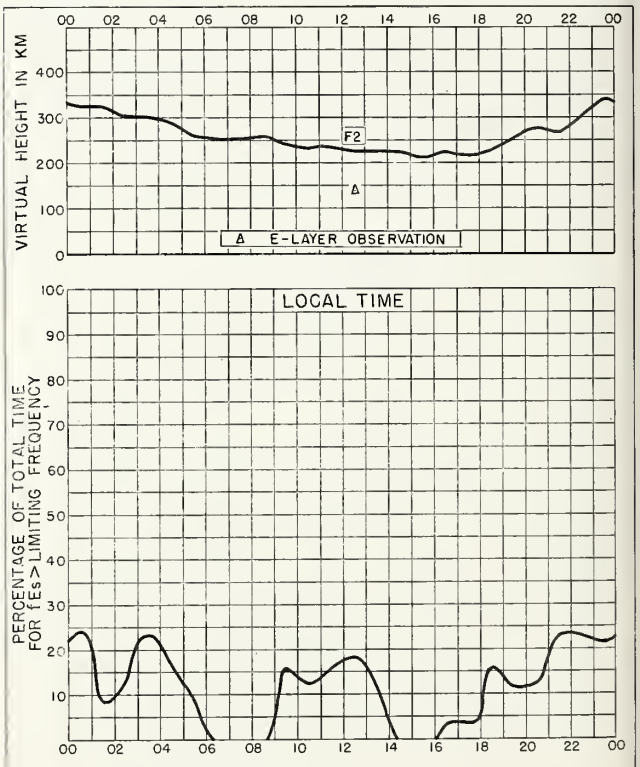



Fig. 32. LULEA, SWEDEN DECEMBER 1956

NBS 490

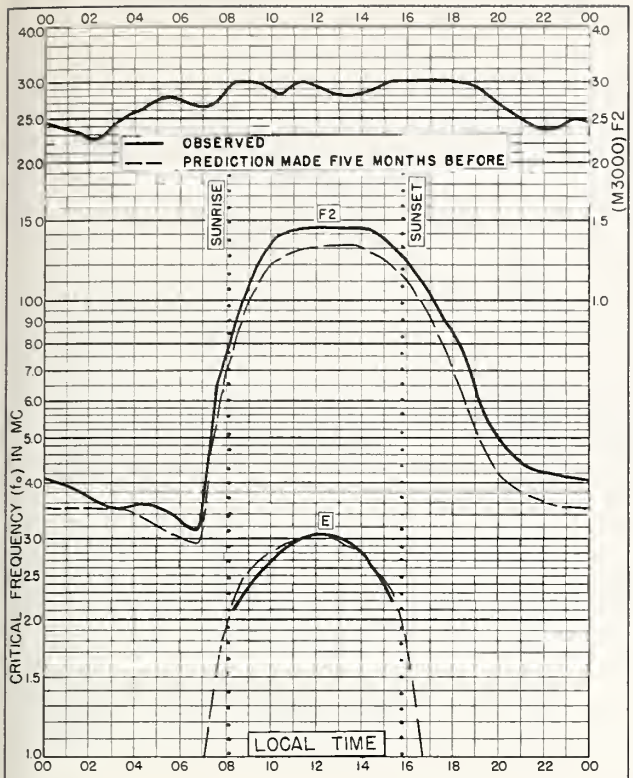



Fig. 33. De BILT, HOLLAND
52.1°N, 5.2°E DECEMBER 1956

NBS 503

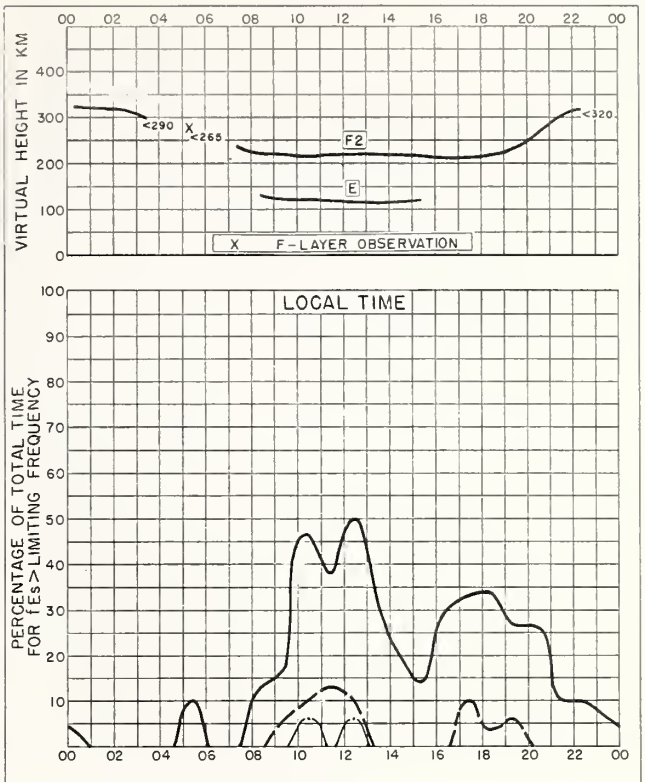



Fig. 34. De BILT, HOLLAND DECEMBER 1956

NBS 490

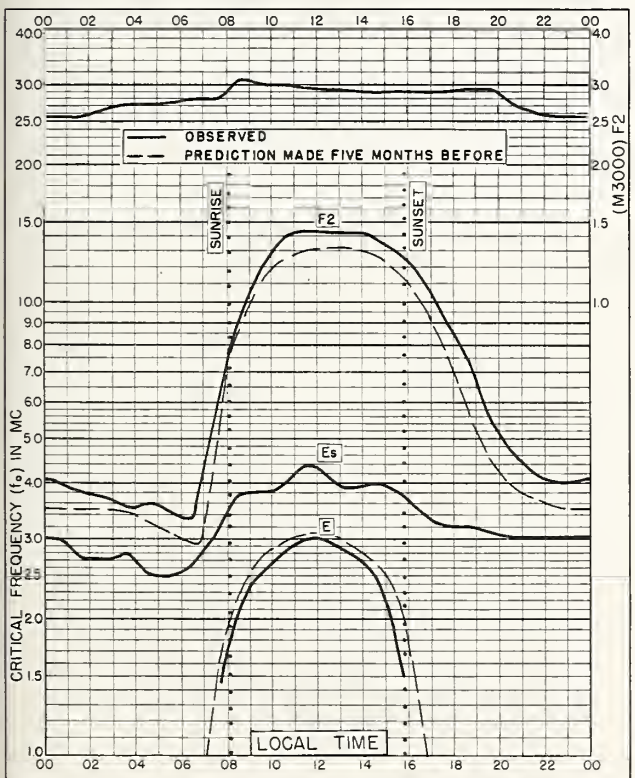



Fig. 35. LINDAU/HARZ, GERMANY
51.6°N, 10.1°E DECEMBER 1956

NBS 503

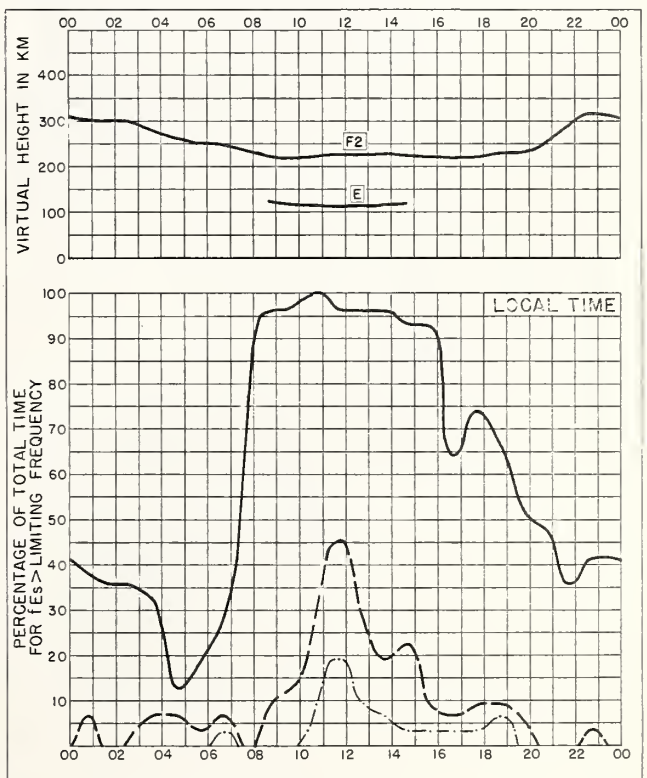



Fig. 36. LINDAU/HARZ, GERMANY DECEMBER 1956

NBS 490

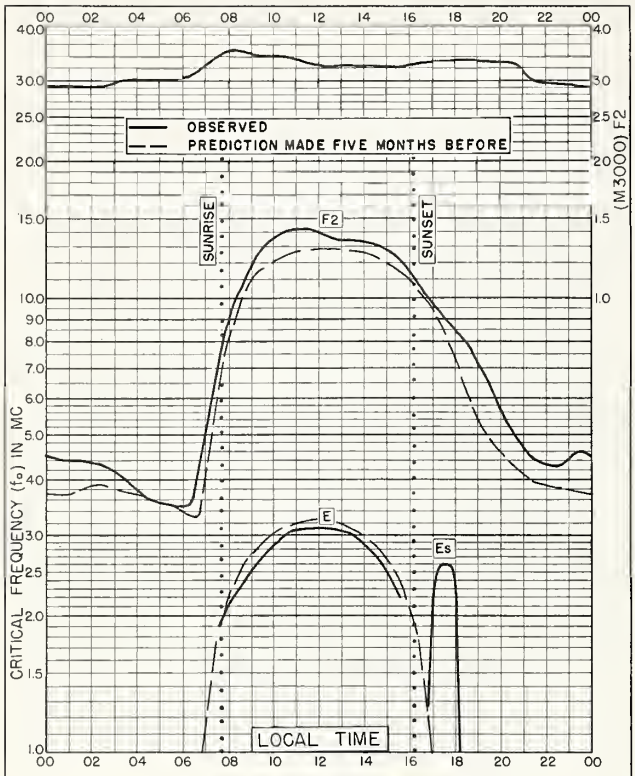
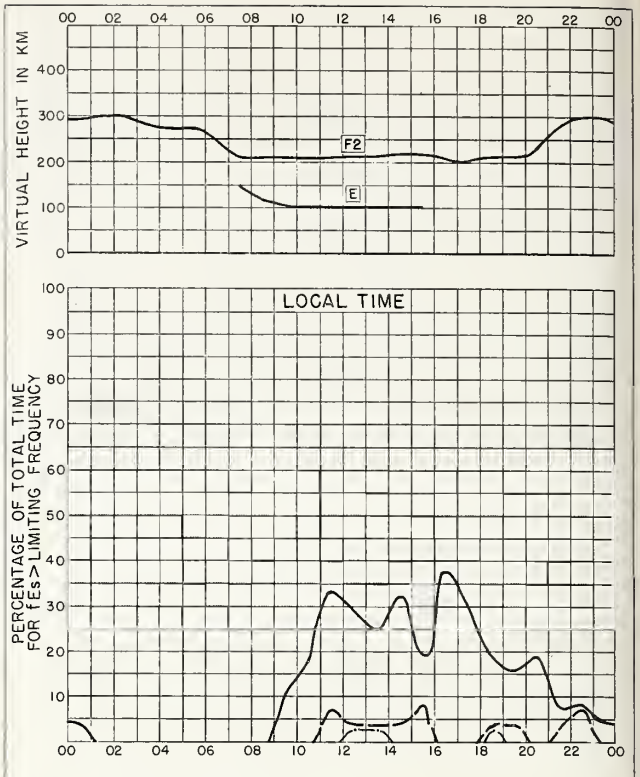



Fig. 37. SCHWARZENBURG, SWITZERLAND
46.8°N, 7.3°E DECEMBER 1956

NBS 503




DECEMBER 1956

Fig. 38. SCHWARZENBURG, SWITZERLAND

NBS 490

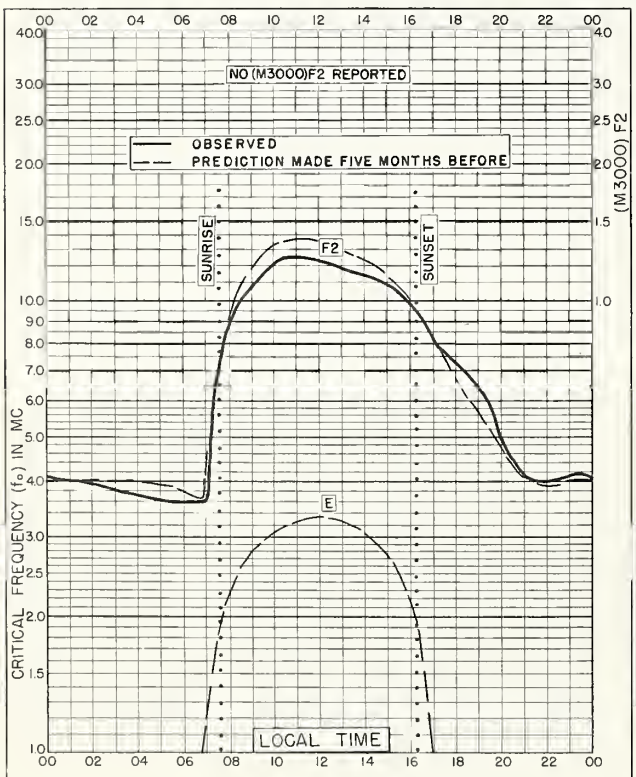



Fig. 39. WAKKANAI, JAPAN
45.4°N, 141.7°E DECEMBER 1956

NBS 503

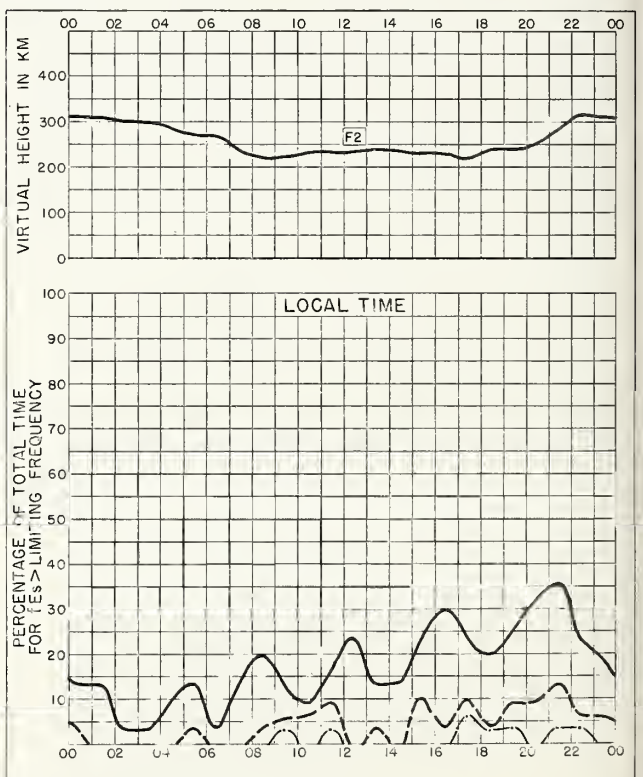



Fig. 40. WAKKANAI, JAPAN DECEMBER 1956

NBS 490

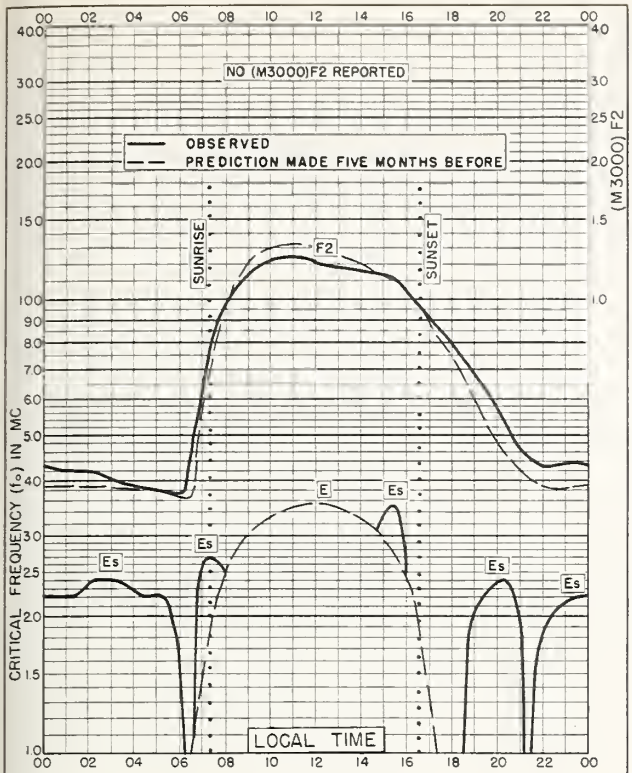



Fig. 41. AKITA, JAPAN
39.7°N, 140.1°E DECEMBER 1956

NBS 503

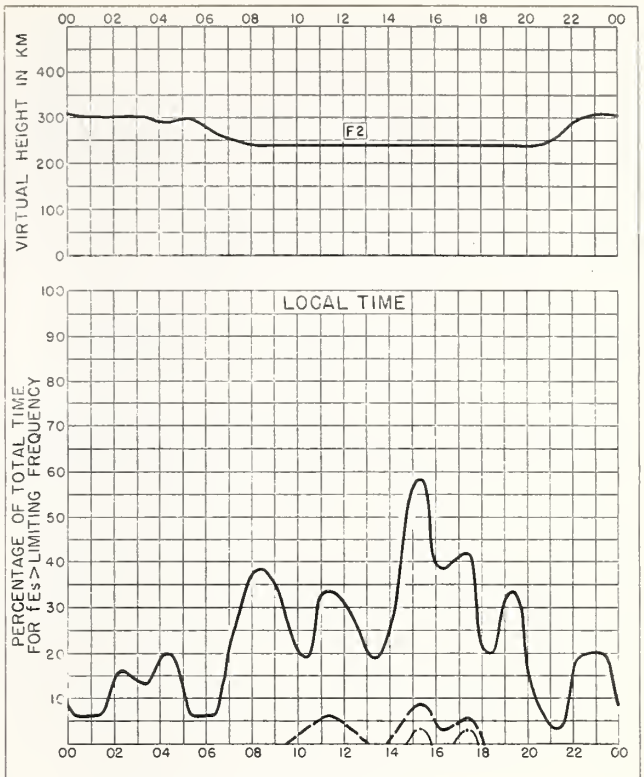



Fig. 42. AKITA, JAPAN DECEMBER 1956

NBS 490

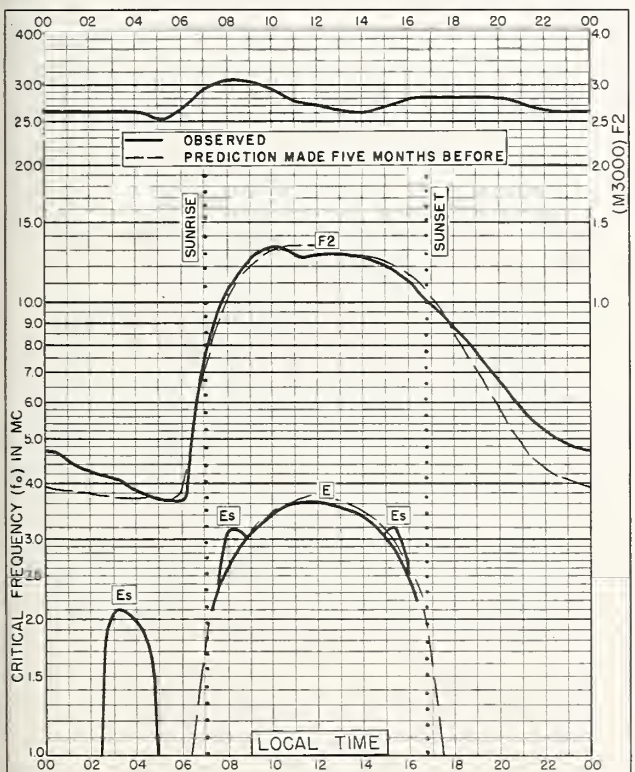



Fig. 43. TOKYO, JAPAN
35.7°N, 139.5°E DECEMBER 1956

NBS 503

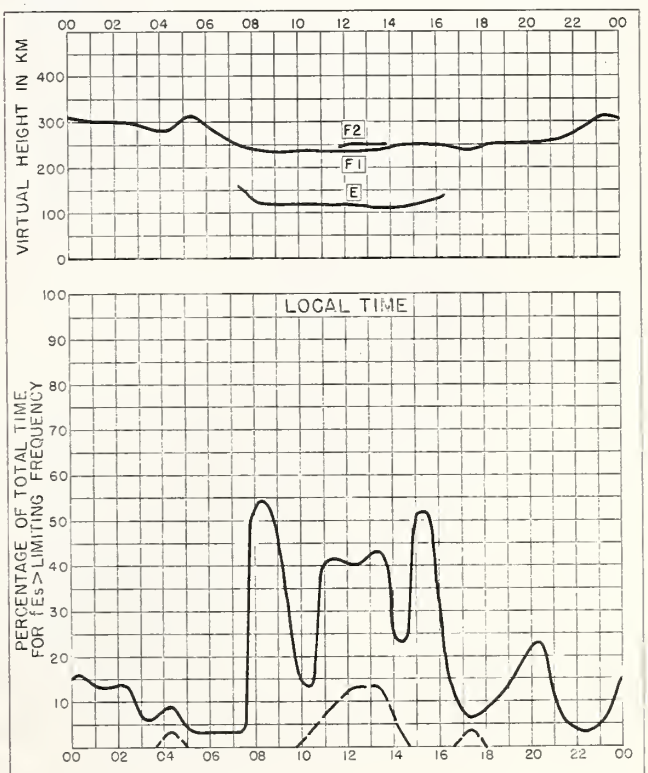



Fig. 44. TOKYO, JAPAN DECEMBER 1956

NBS 490

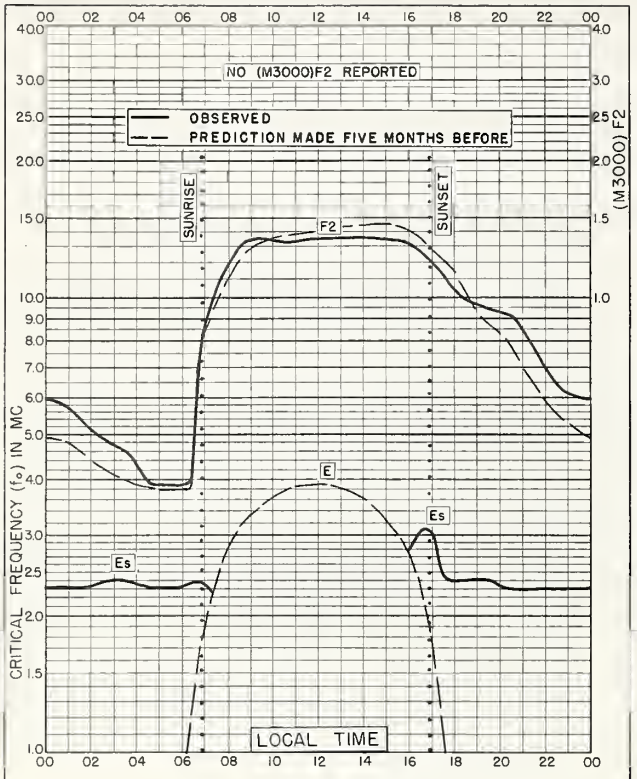



Fig. 45. YAMAGAWA, JAPAN
31.2°N, 130.6°E DECEMBER 1956

NBS 503

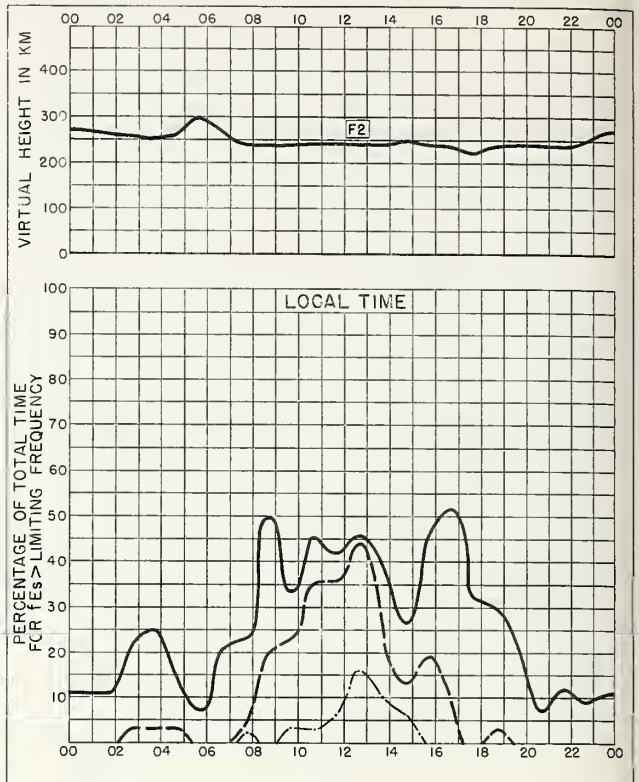



Fig. 46. YAMAGAWA, JAPAN DECEMBER 1956

NBS 490

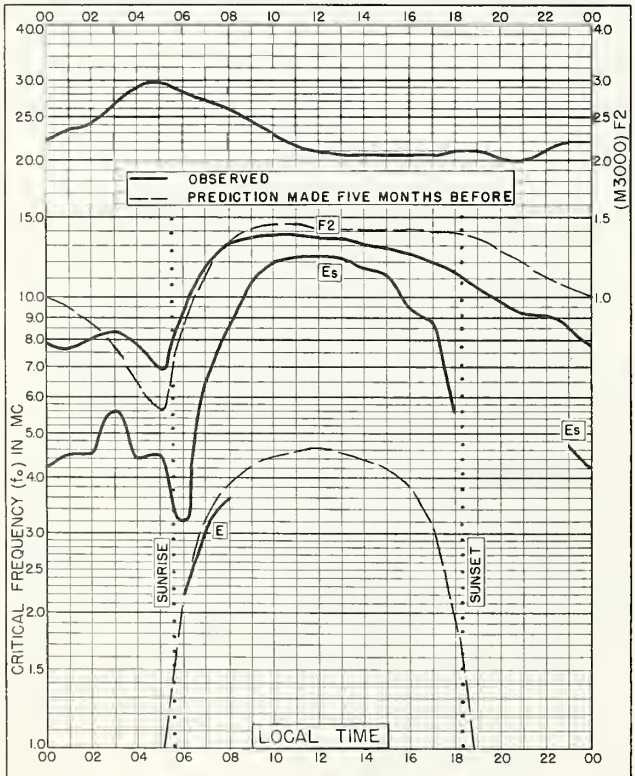



Fig. 47. HUANCAYO, PERU
12.0°S, 75.3°W DECEMBER 1956

NBS 503

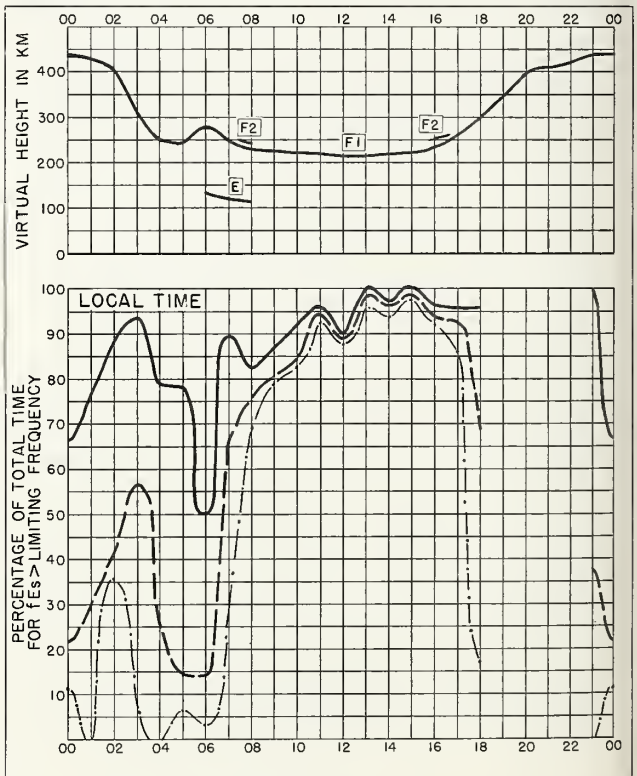



Fig. 48. HUANCAYO, PERU DECEMBER 1956

NBS 490

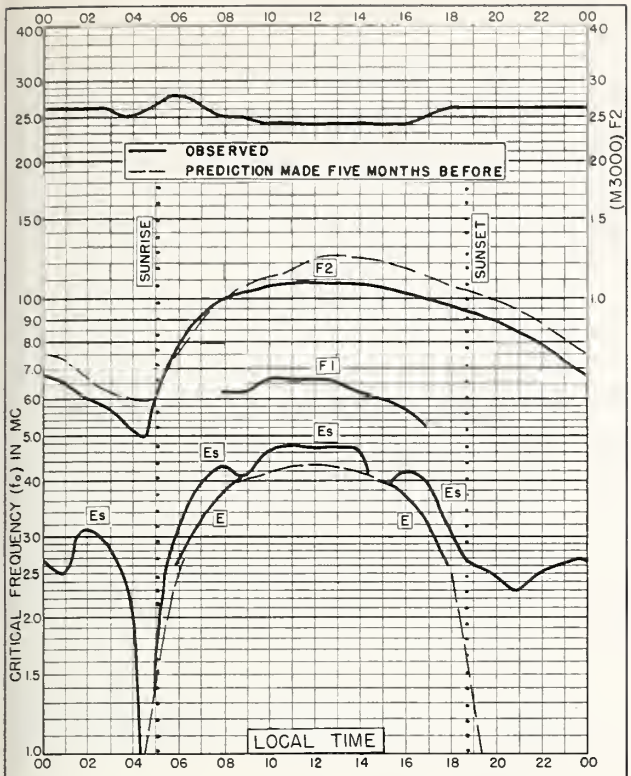



Fig. 49. JOHANNESBURG, UNION OF S. AFRICA
26.2°S, 28.1°E DECEMBER 1956

NBS 503

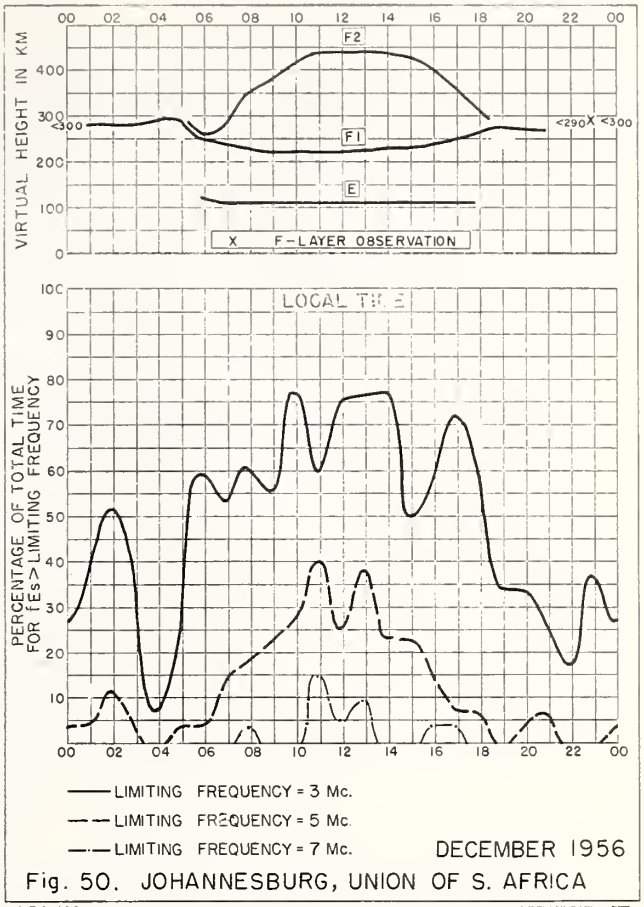



Fig. 50. JOHANNESBURG, UNION OF S. AFRICA DECEMBER 1956

NBS 490

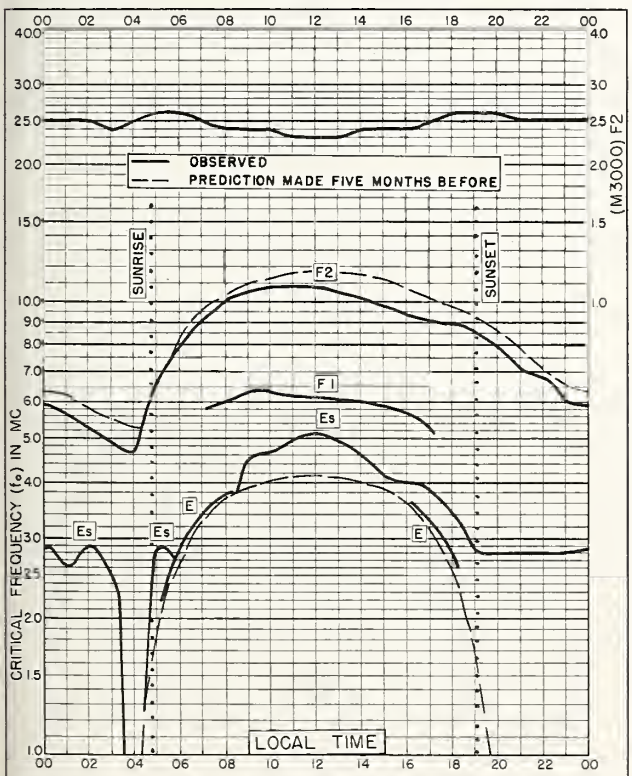



Fig. 51. CAPETOWN, UNION OF S. AFRICA
34.2°S, 18.3°E DECEMBER 1956

NBS 503

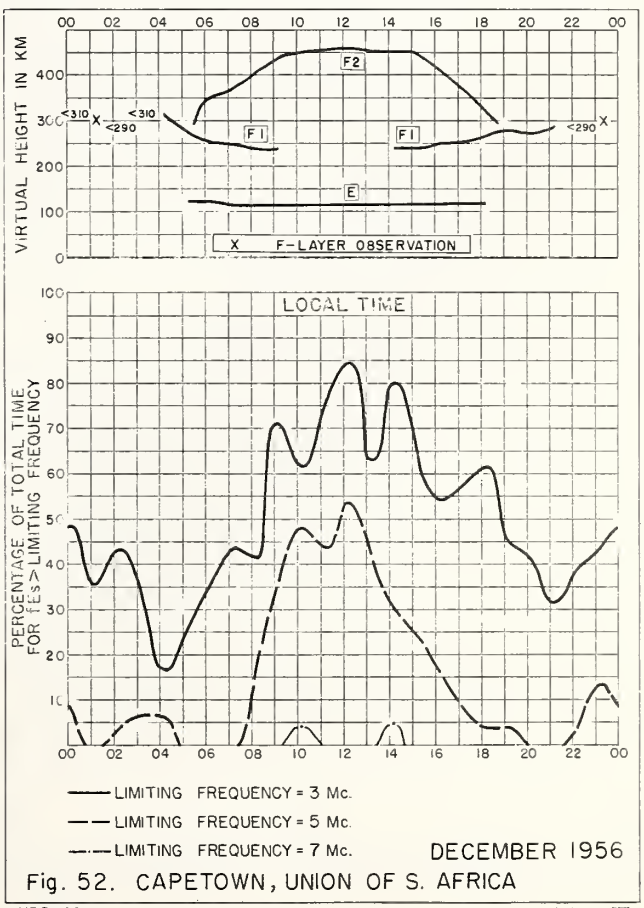



Fig. 52. CAPETOWN, UNION OF S. AFRICA DECEMBER 1956

NBS 490

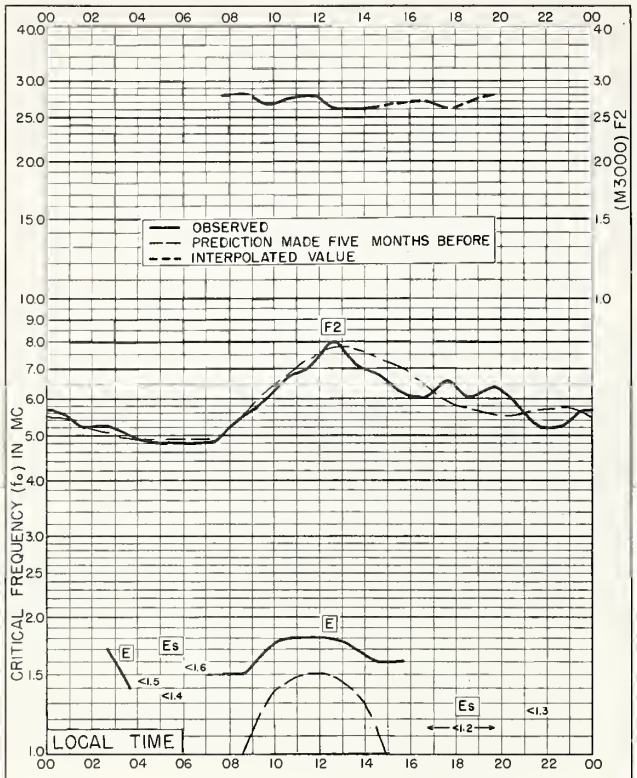
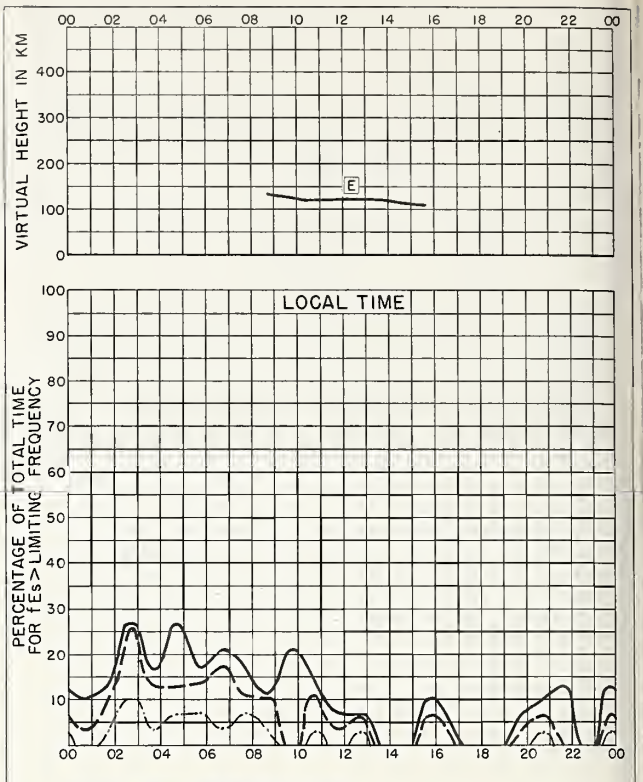



Fig. 53. RESOLUTE BAY, CANADA
74.7°N, 94.9°W NOVEMBER 1956

NBS 503




NOVEMBER 1956

Fig. 54. RESOLUTE BAY, CANADA

NBS 490

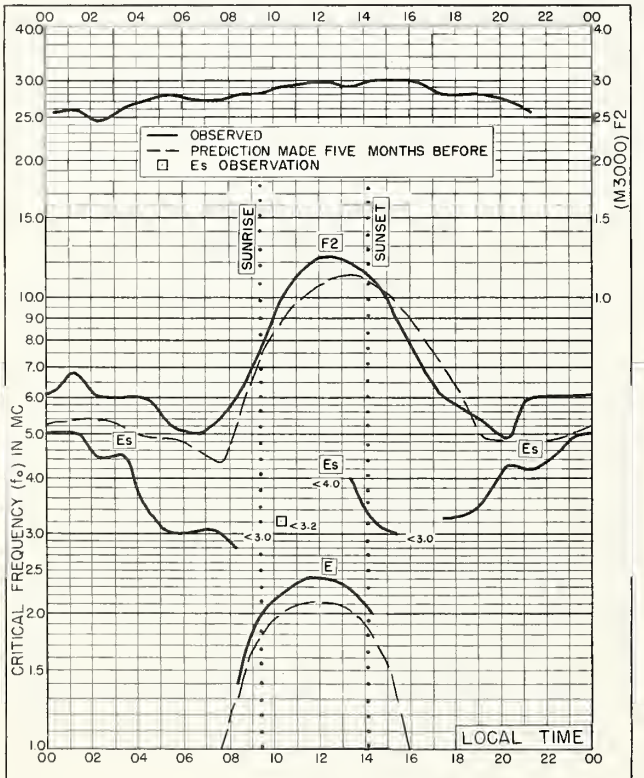



Fig. 55. KIRUNA, SWEDEN
67.8°N, 20.3°E NOVEMBER 1956

NBS 503

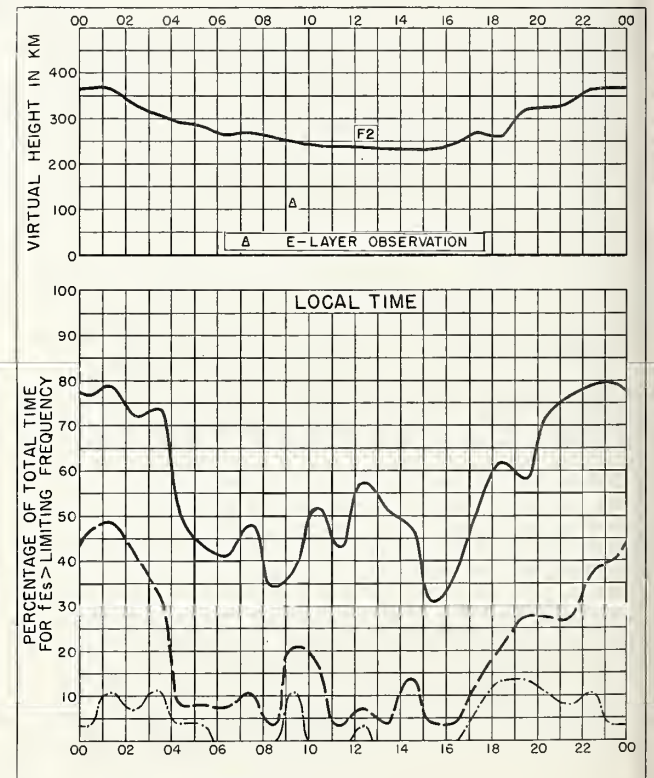



Fig. 56. KIRUNA, SWEDEN NOVEMBER 1956

NBS 490

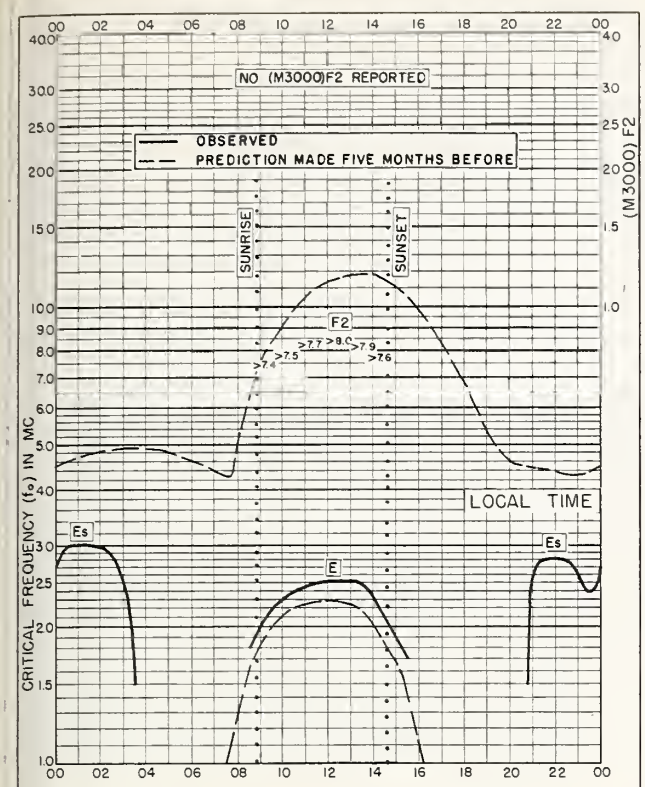



Fig. 57. LULEA, SWEDEN
65.6°N, 22.1°E NOVEMBER 1956

NBS 503

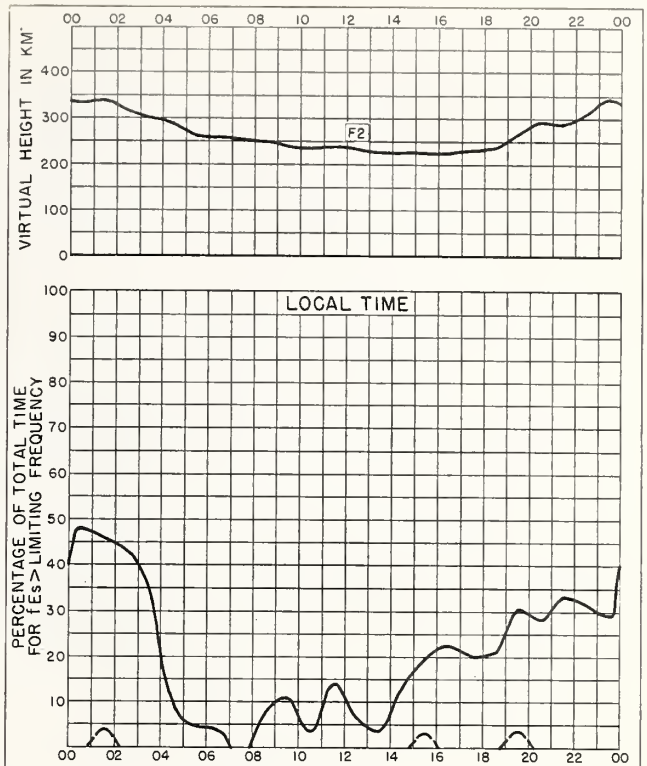



Fig. 58. LULEA, SWEDEN NOVEMBER 1956

NBS 490

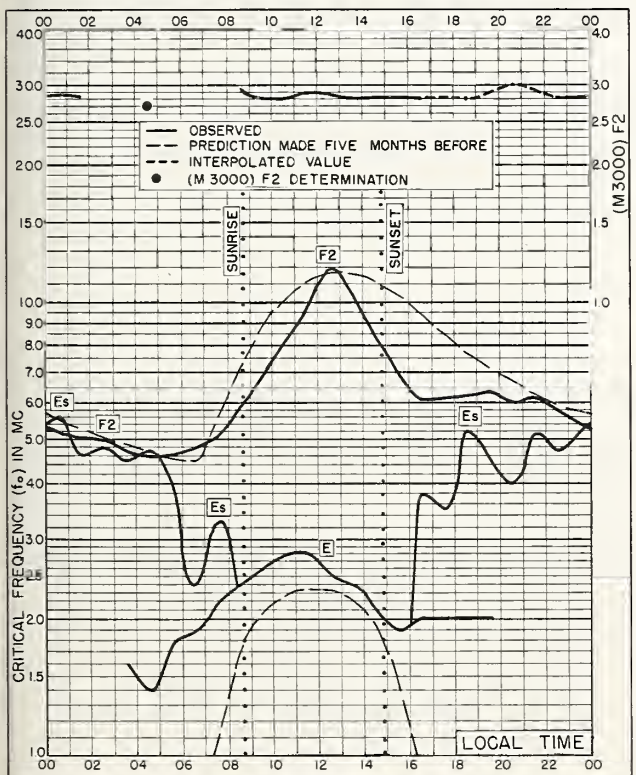



Fig. 59. BAKER LAKE, CANADA
64.3°N, 96.0°W NOVEMBER 1956

NBS 503

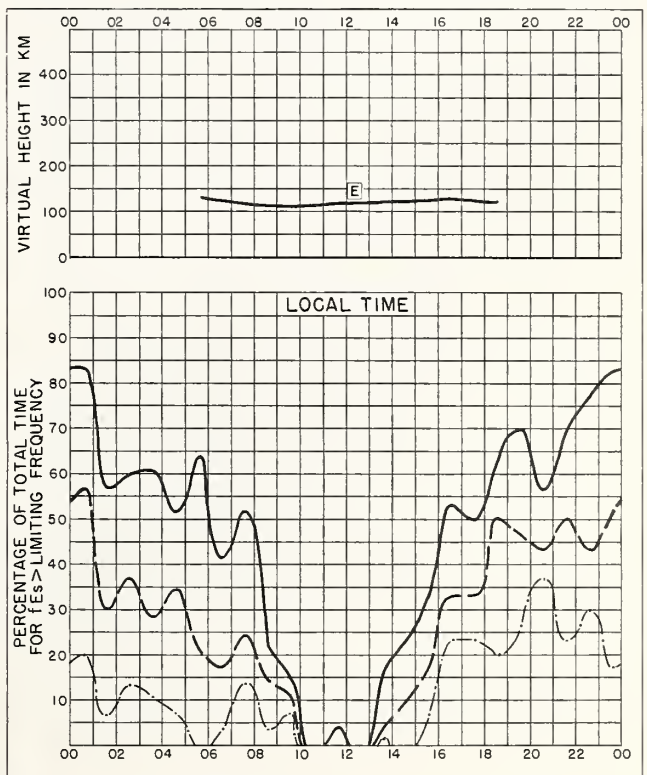



Fig. 60. BAKER LAKE, CANADA NOVEMBER 1956

NBS 490

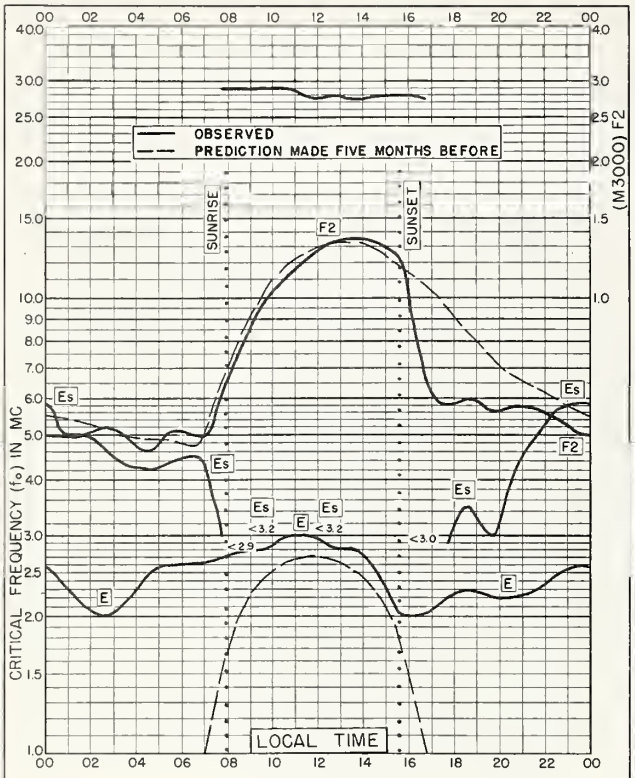



Fig. 61. CHURCHILL, CANADA
58.8°N, 94.2°W NOVEMBER 1956

NBS 503

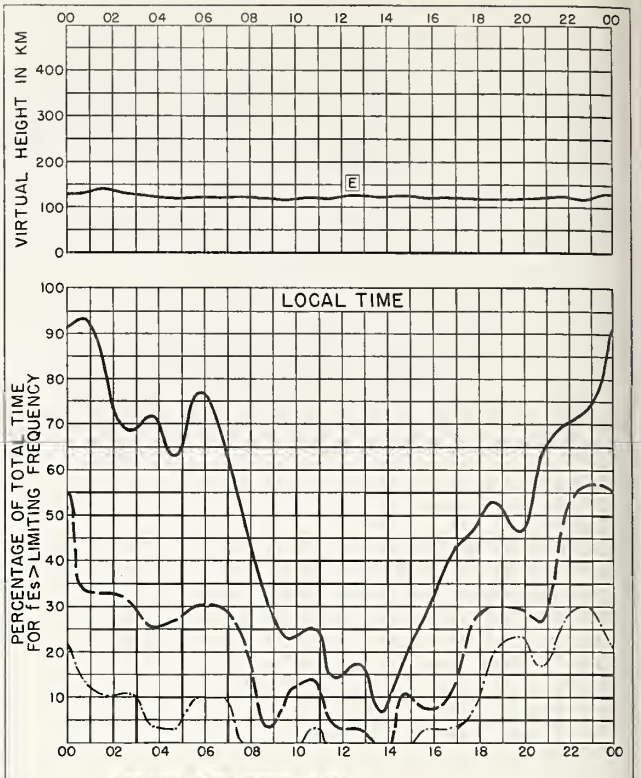



Fig. 62. CHURCHILL, CANADA NOVEMBER 1956

NBS 490

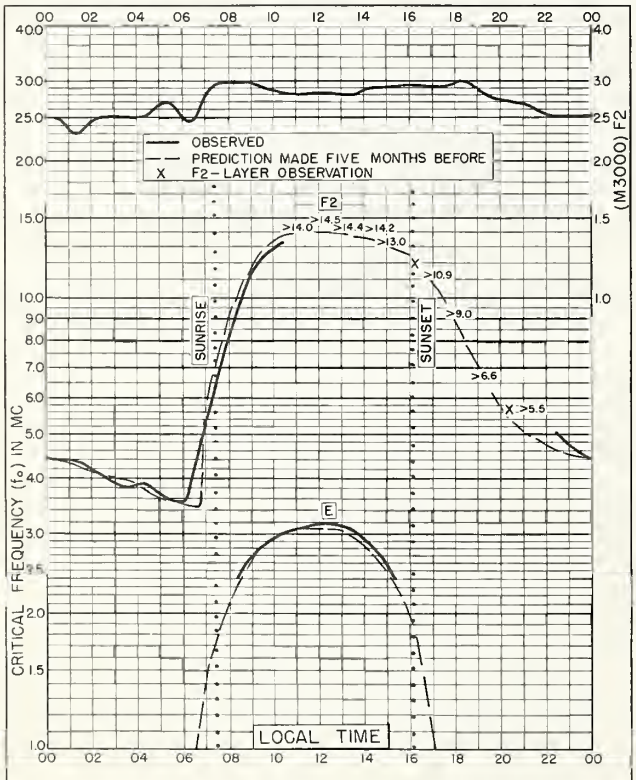



Fig. 63. De BILT, HOLLAND
52.1°N, 5.2°E NOVEMBER 1956

NBS 503

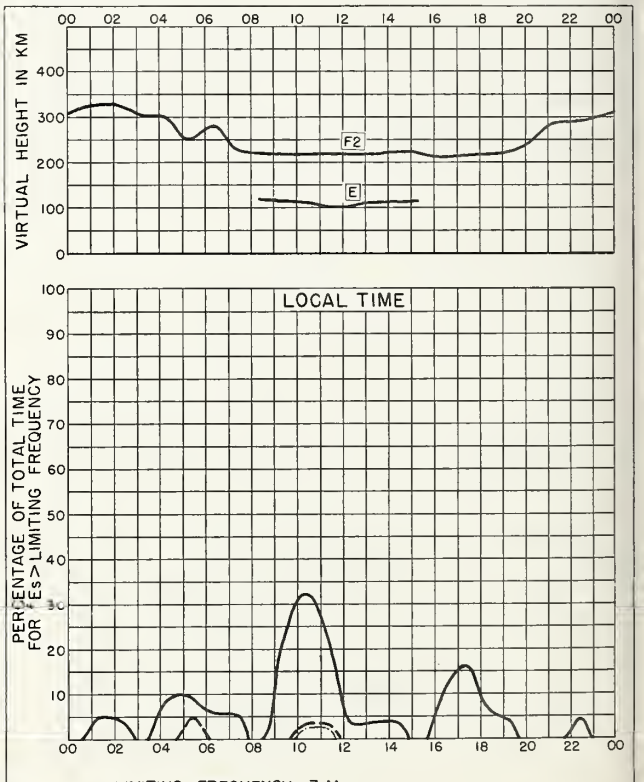



Fig. 64. De BILT, HOLLAND NOVEMBER 1956

NBS 490

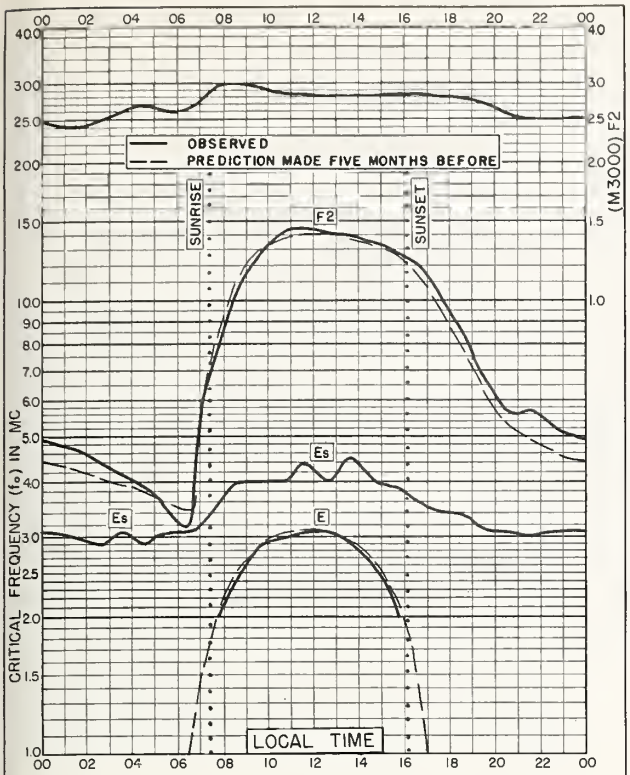



Fig. 65. LINDAU/HARZ, GERMANY
51.6°N, 10.1°E NOVEMBER 1956

NBS 503

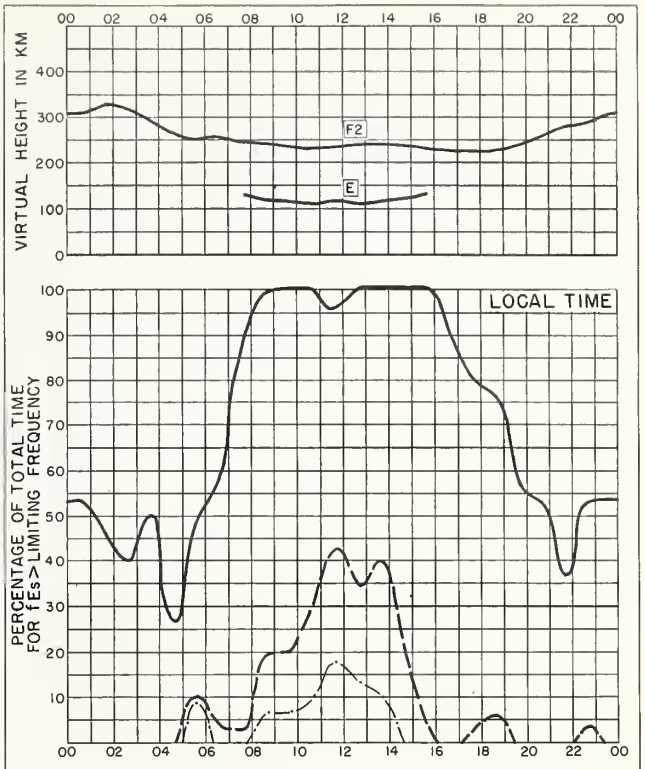



Fig. 66. LINDAU/HARZ, GERMANY NOVEMBER 1956

NBS 490

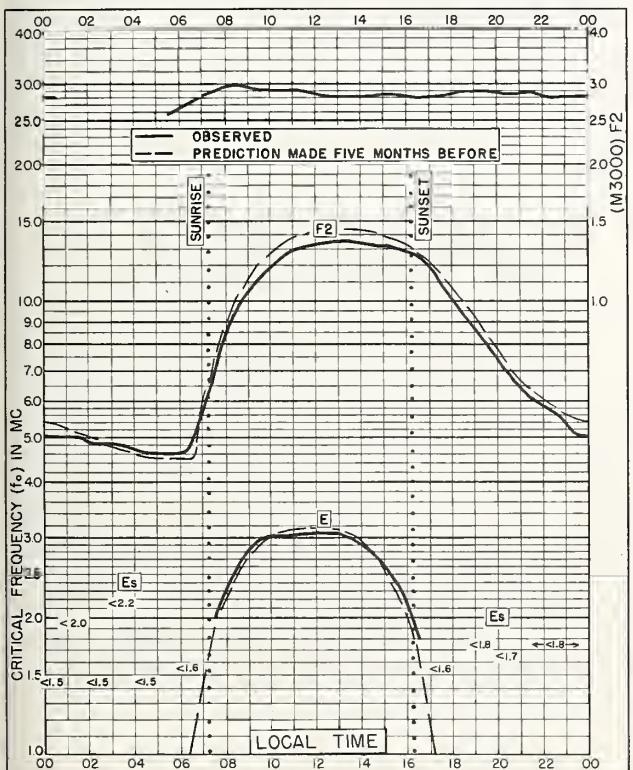



Fig. 67. WINNIPEG, CANADA
49.9°N, 97.4°W NOVEMBER 1956

NBS 503

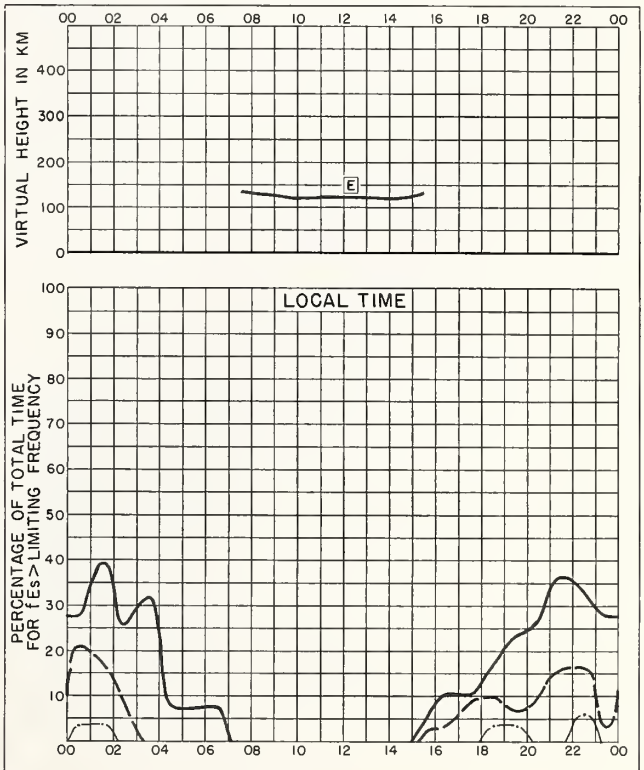



Fig. 68. WINNIPEG, CANADA NOVEMBER 1956

NBS 490

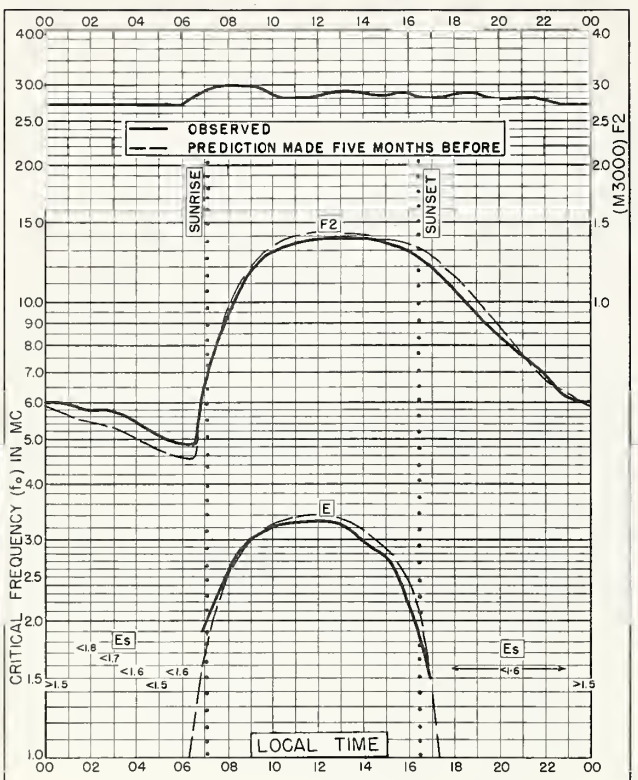



Fig. 69. OTTAWA, CANADA
45.4°N, 75.9°W NOVEMBER 1956

NBS 503

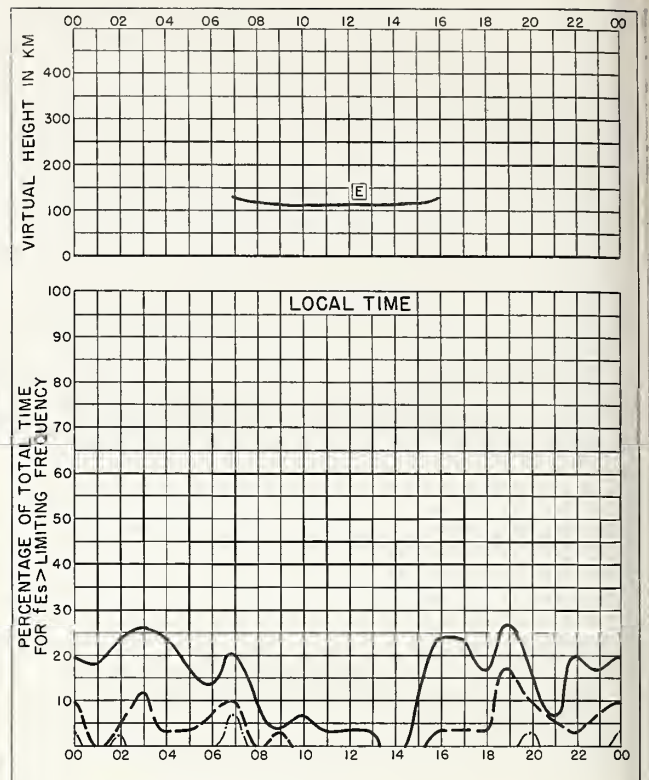



Fig. 70. OTTAWA, CANADA NOVEMBER 1956

NBS 490

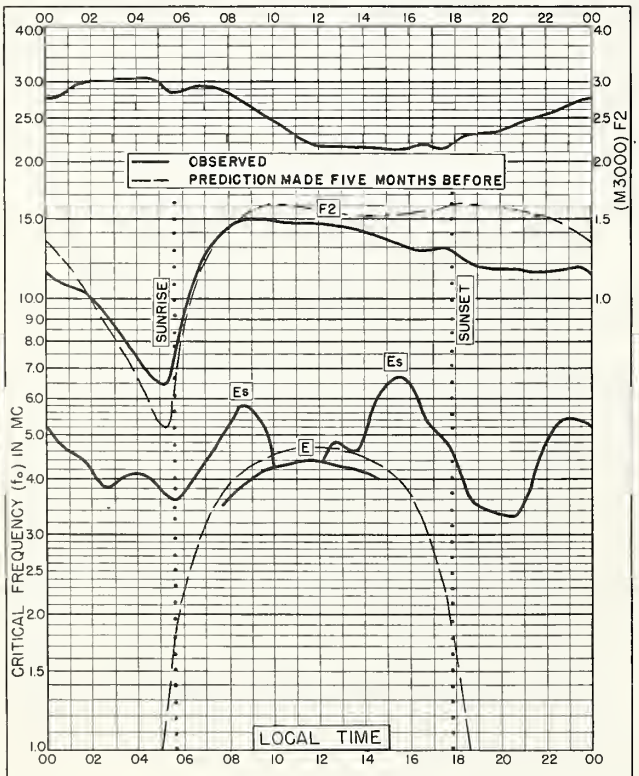



Fig. 71. TALARA, PERU
4.6°S, 81.3°W NOVEMBER 1956

NBS 503

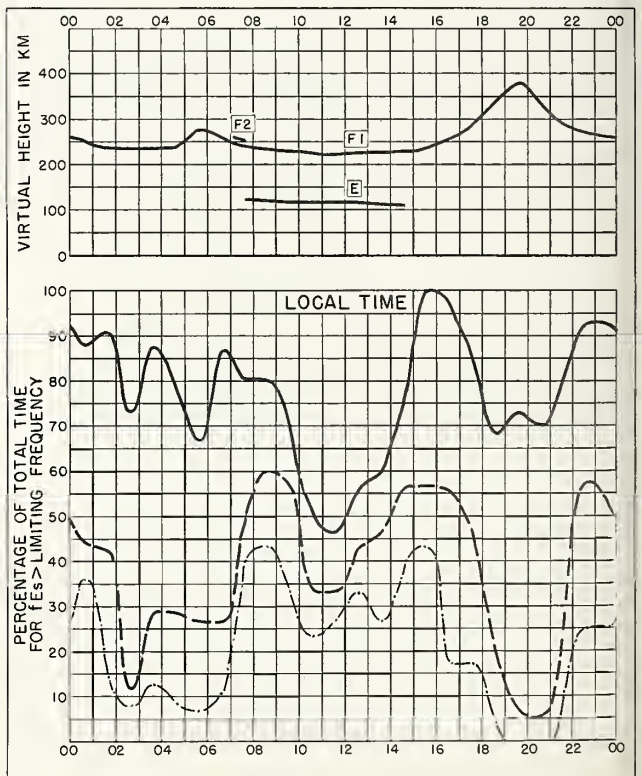



Fig. 72. TALARA, PERU NOVEMBER 1956

NBS 490

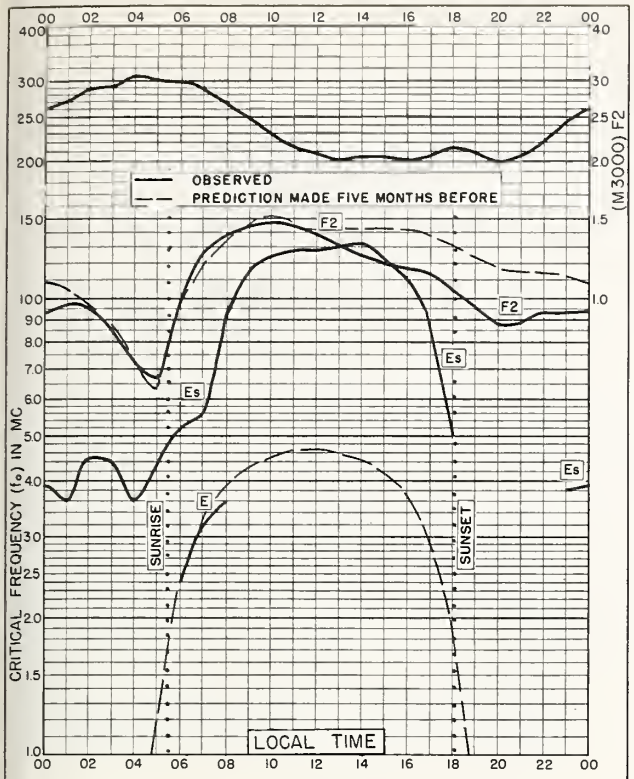



Fig. 73. HUANCAYO, PERU
12.0°S, 75.3°W NOVEMBER 1956

NBS 503

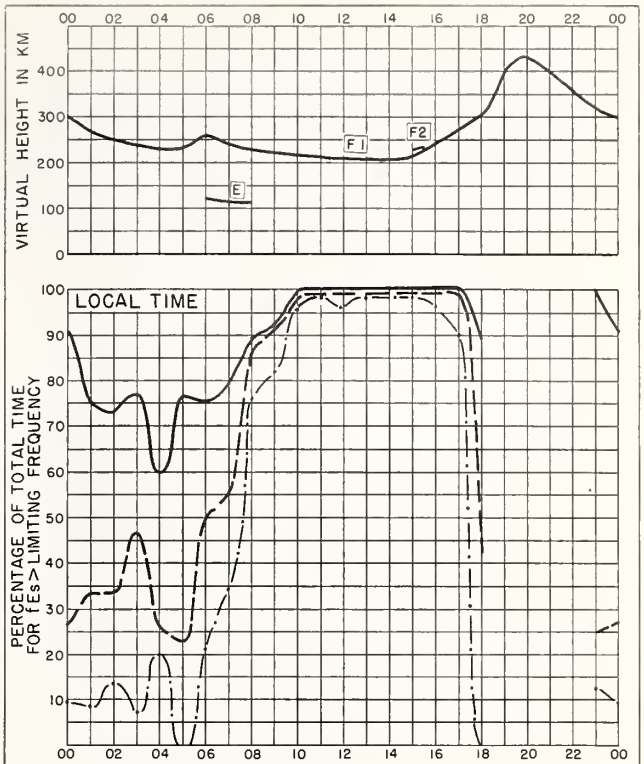



Fig. 74. HUANCAYO, PERU NOVEMBER 1956

NBS 490

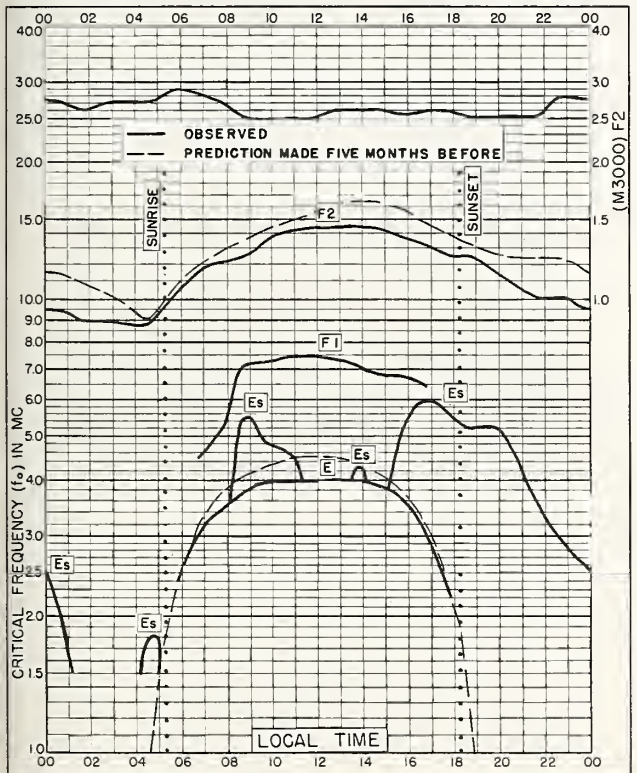



Fig. 75. RAROTONGA I.
21.2°S, 159.8°W NOVEMBER 1956

NBS 503

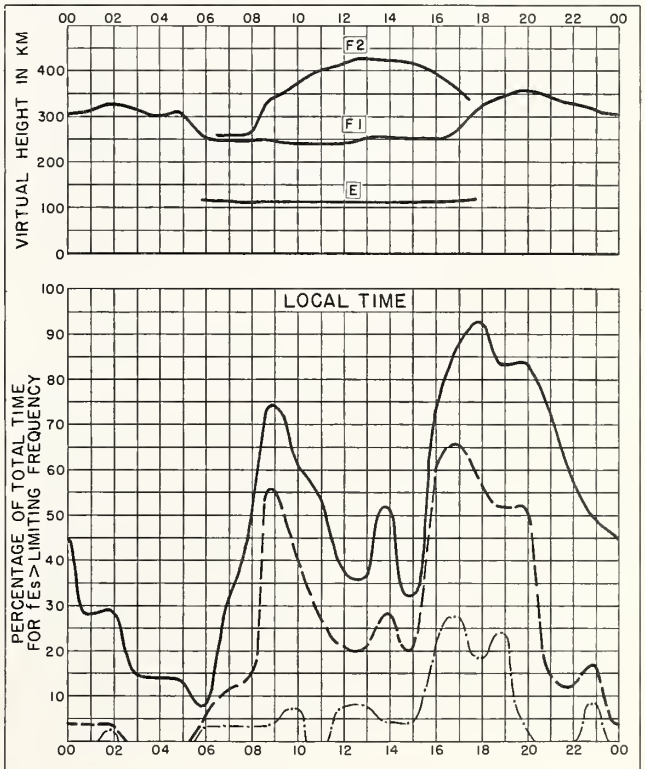



Fig. 76. RAROTONGA I. NOVEMBER 1956

NBS 490

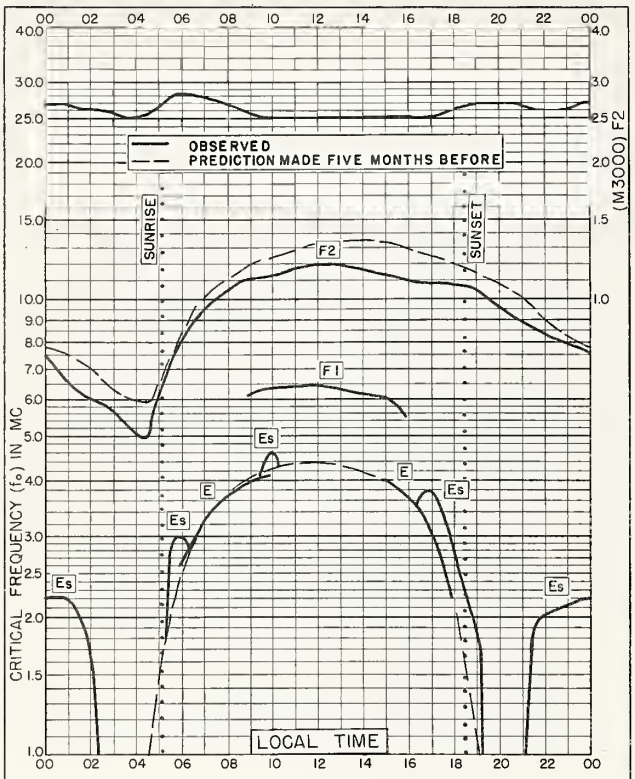



Fig. 77. JOHANNESBURG, UNION OF S. AFRICA
26.2°S, 28.1°E NOVEMBER 1956

NBS 503

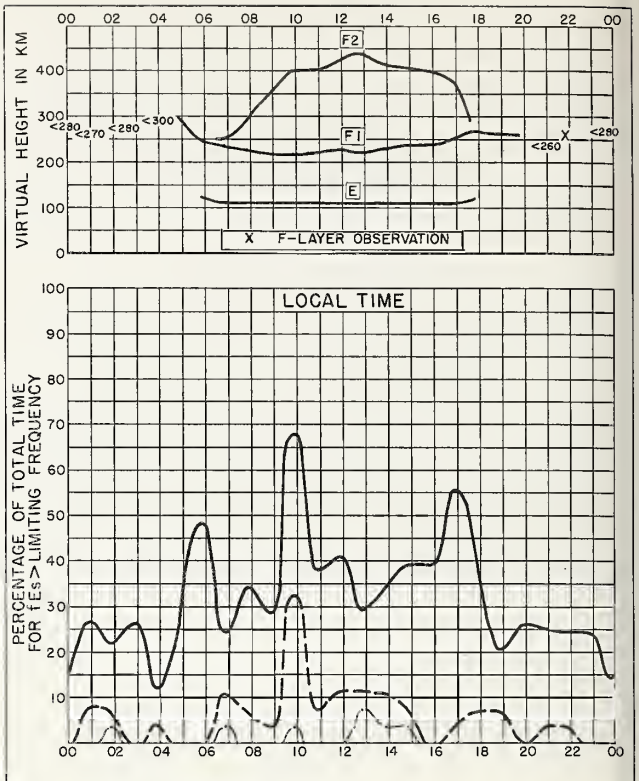



Fig. 78. JOHANNESBURG, UNION OF S. AFRICA NOVEMBER 1956

NBS 490

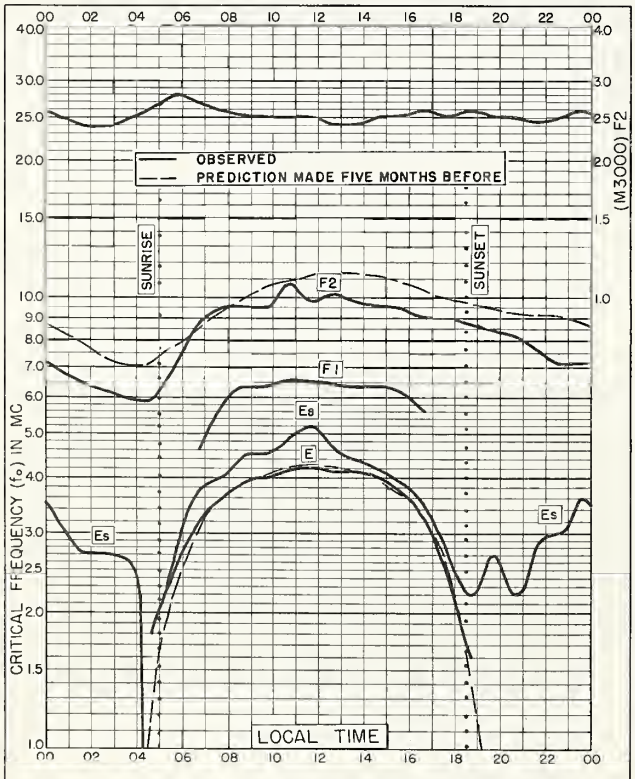



Fig. 79. WATHEROO, W. AUSTRALIA
30.3°S, 115.9°E NOVEMBER 1956

NBS 503

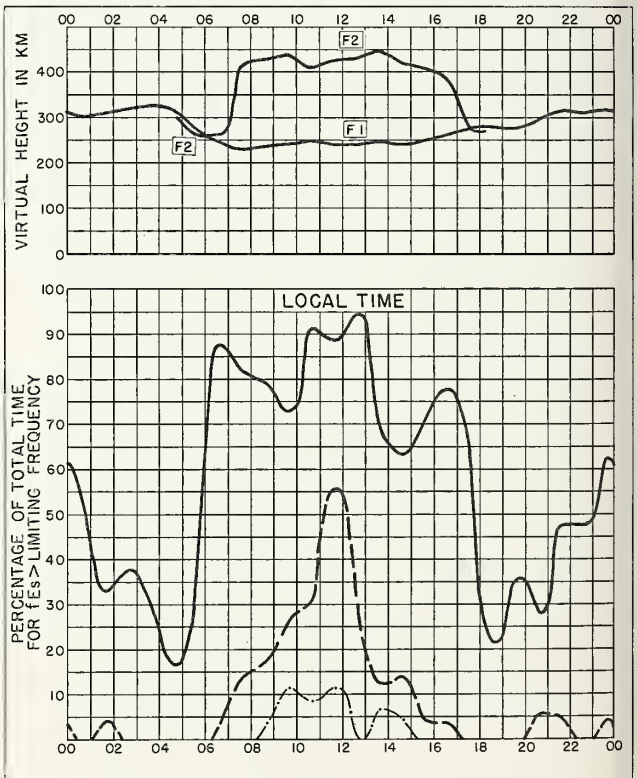



Fig. 80. WATHEROO, W. AUSTRALIA NOVEMBER 1956

NBS 490

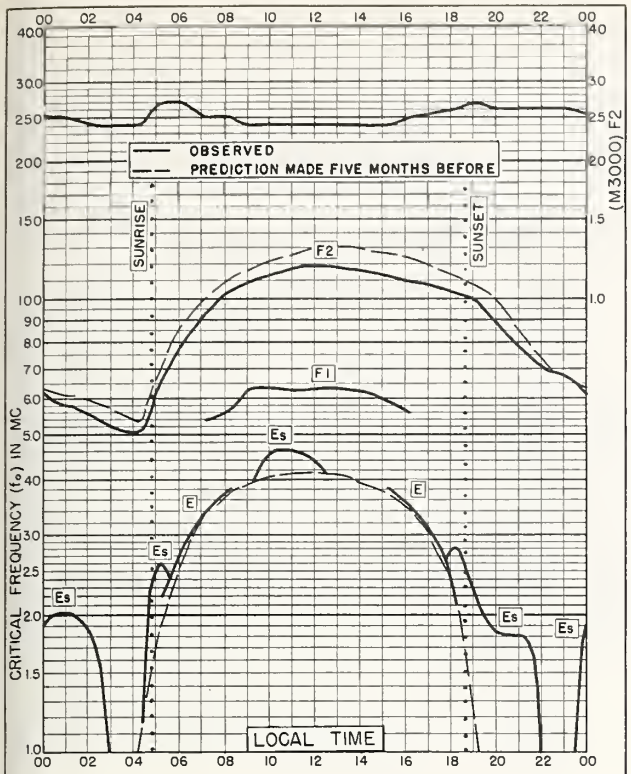
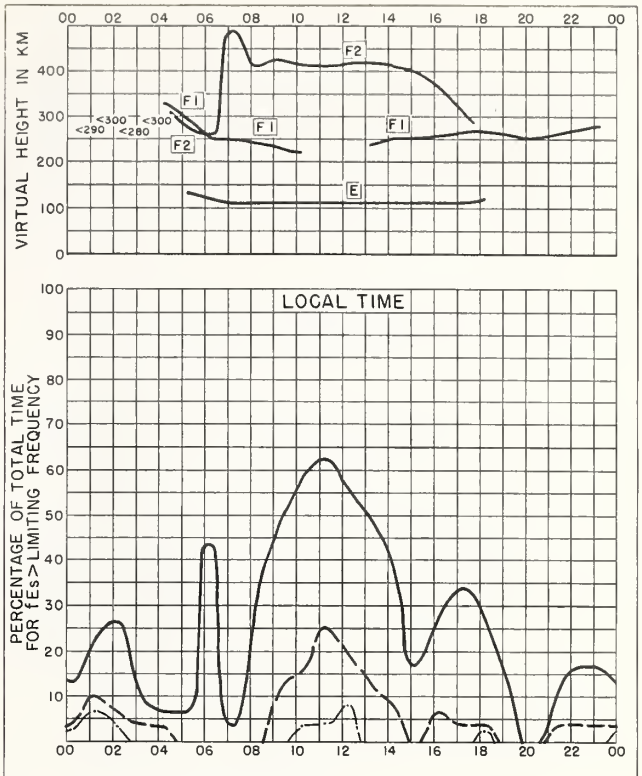



Fig. 81. CAPETOWN, UNION OF S. AFRICA
34.2°S, 18.3°E NOVEMBER 1956

NBS 503




NOVEMBER 1956

Fig. 82. CAPETOWN, UNION OF S. AFRICA

NBS 490

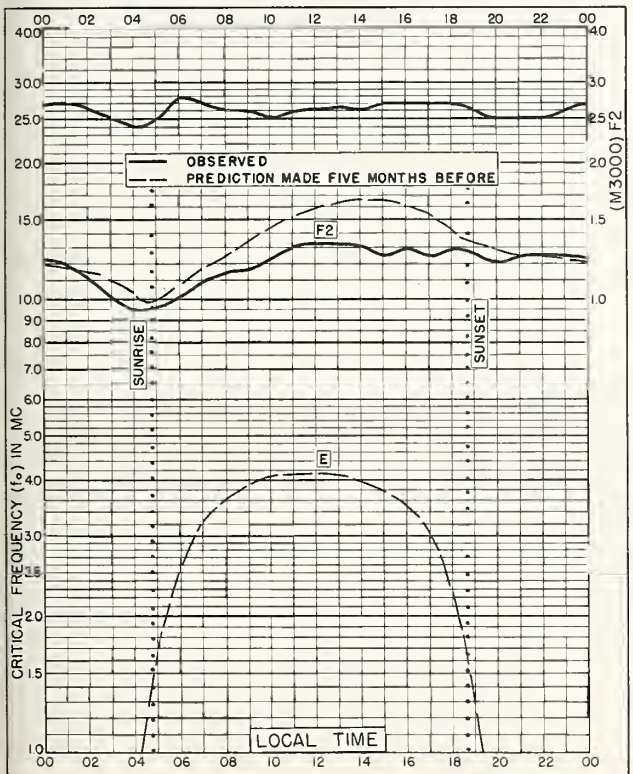
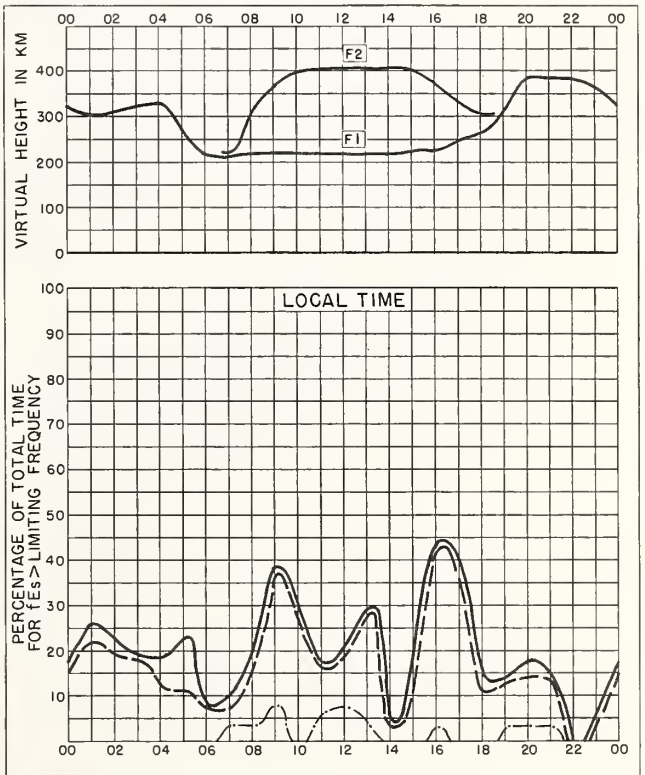



Fig. 83. BUENOS AIRES, ARGENTINA
34.5°S, 58.5°W NOVEMBER 1956

NBS 503




NOVEMBER 1956

Fig. 84. BUENOS AIRES, ARGENTINA

NBS 490

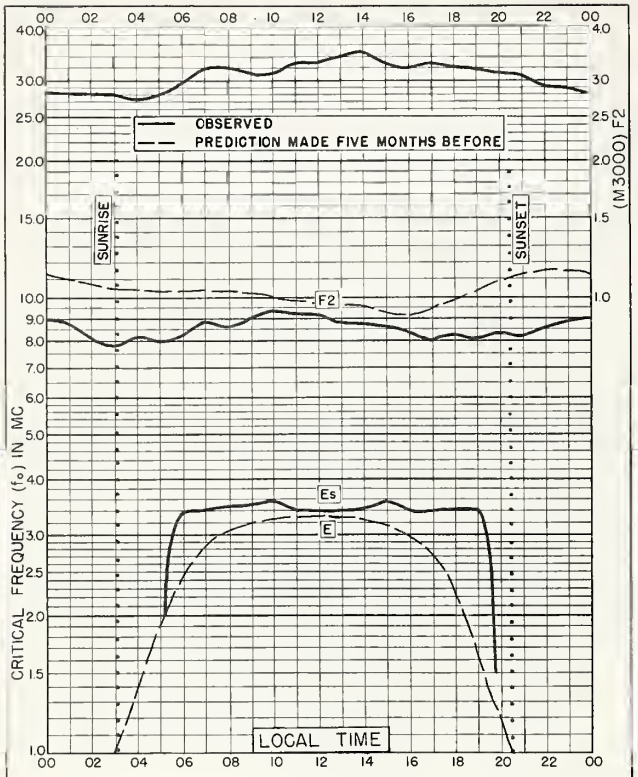



Fig. 85. DECEPCION I.
63.0°S, 60.7°W NOVEMBER 1956

NBS 503

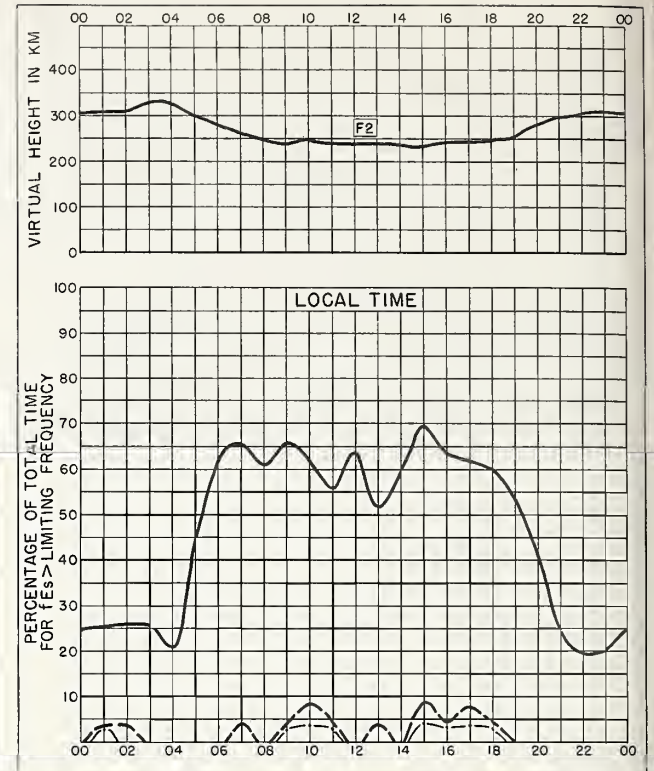



Fig. 86. DECEPCION I. NOVEMBER 1956

NBS 490

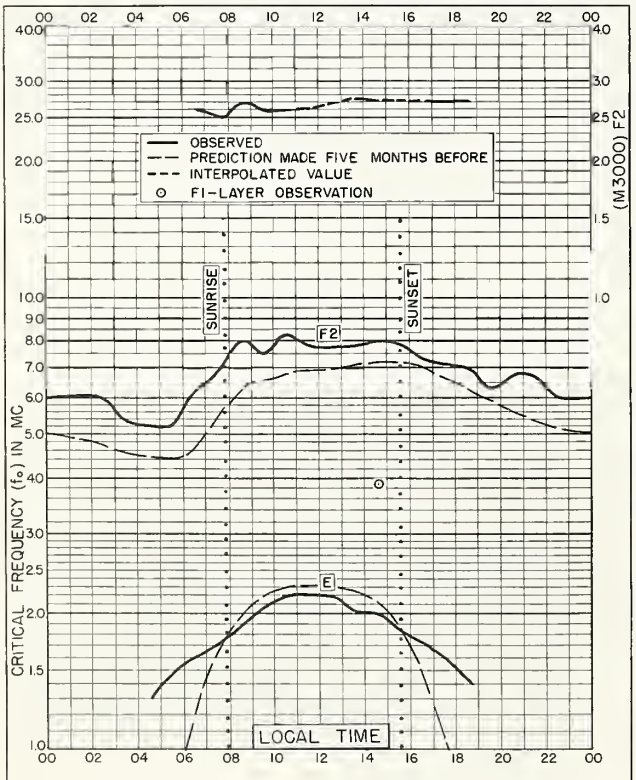



Fig. 87. RESOLUTE BAY, CANADA
74.7°N, 94.9°W OCTOBER 1956

NBS 503

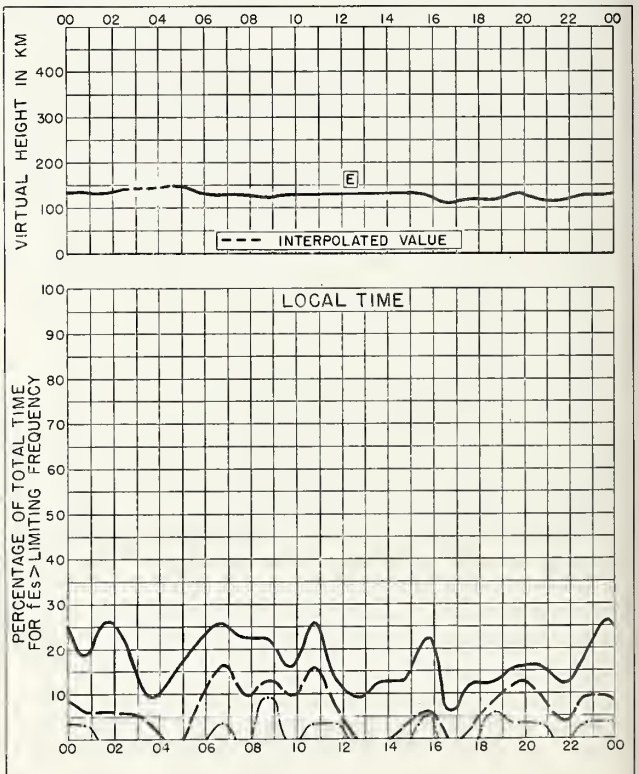



Fig. 88. RESOLUTE BAY, CANADA OCTOBER 1956

NBS 490

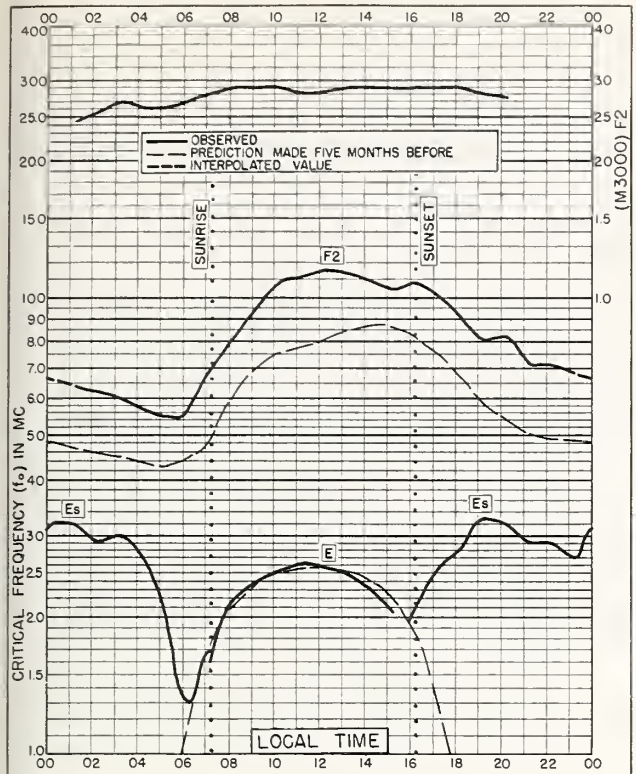



Fig. 89. TROMSO, NORWAY
69.7°N, 19.0°E OCTOBER 1956

NBS 503

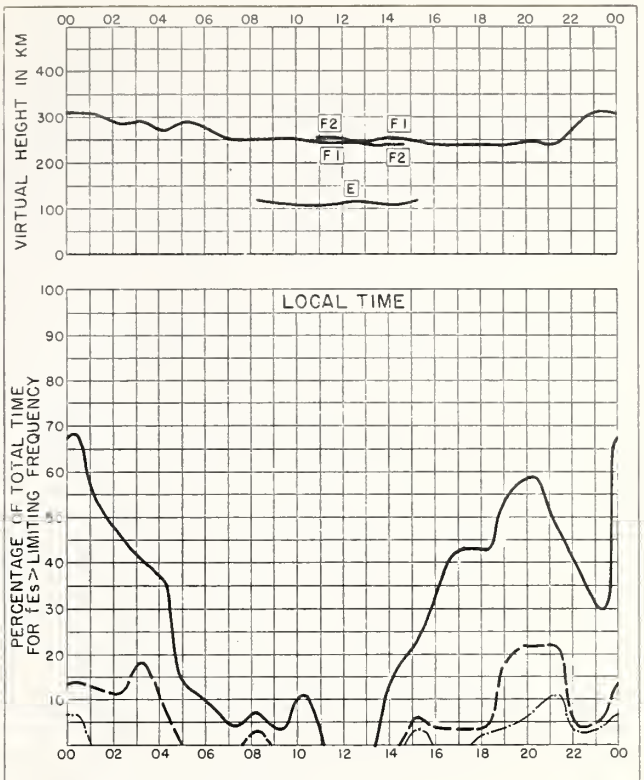



Fig. 90. TROMSO, NORWAY OCTOBER 1956

NBS 490

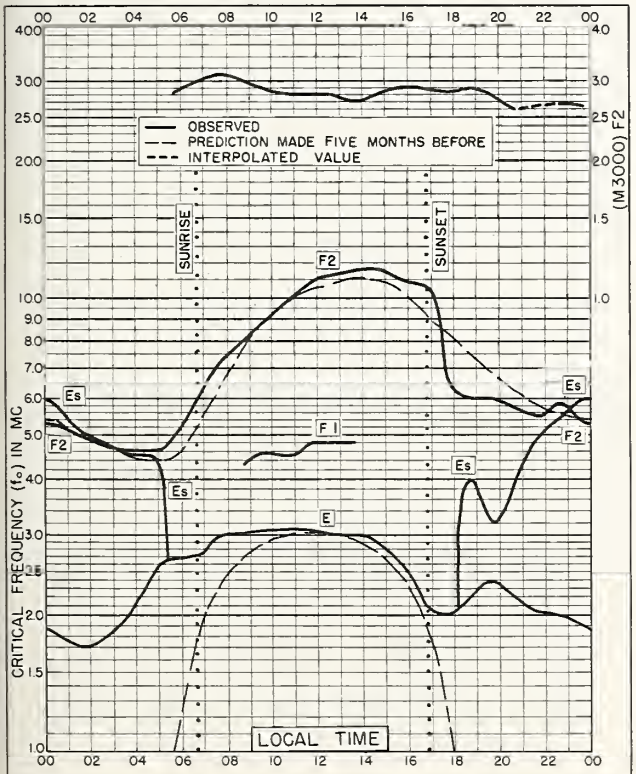



Fig. 91. CHURCHILL, CANADA
58.8°N, 94.2°W OCTOBER 1956

NBS 503

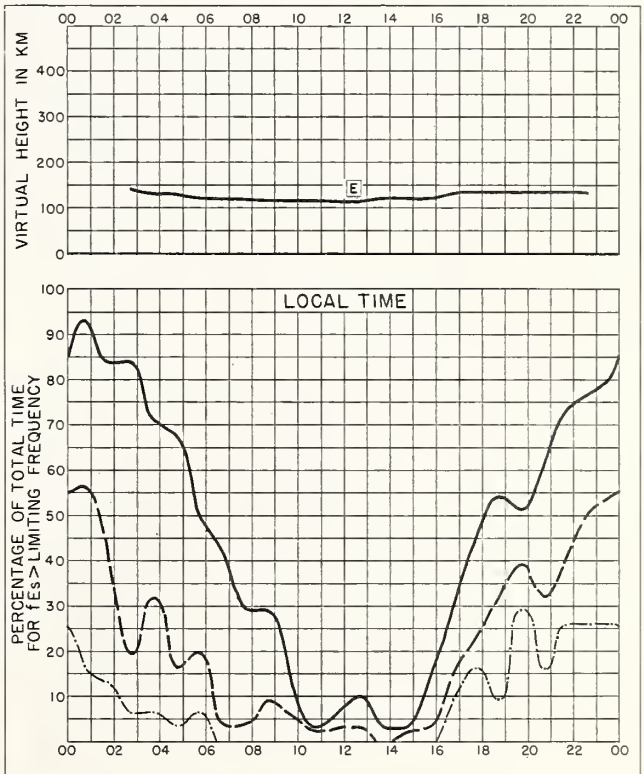



Fig. 92. CHURCHILL, CANADA OCTOBER 1956

NBS 490

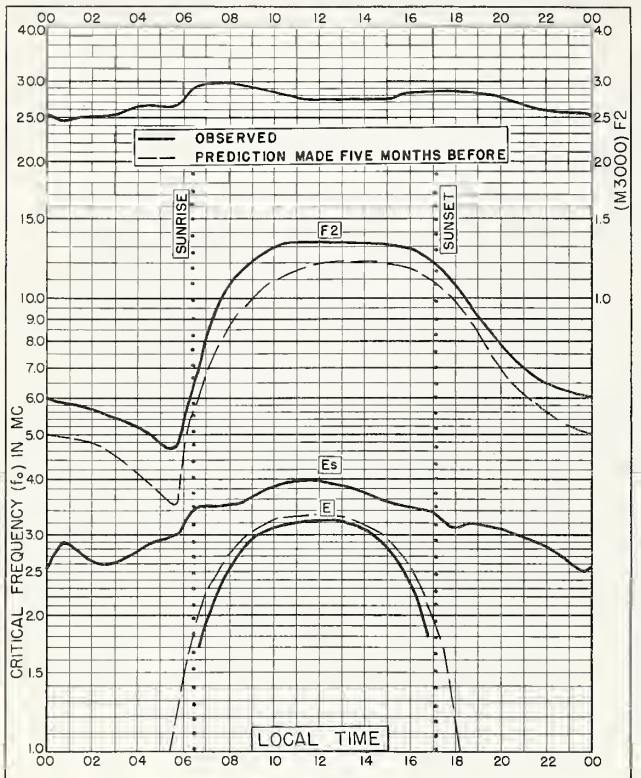



Fig. 93. LINDAU/HARZ, GERMANY
51.6°N, 10.1°E OCTOBER 1956

NBS 503

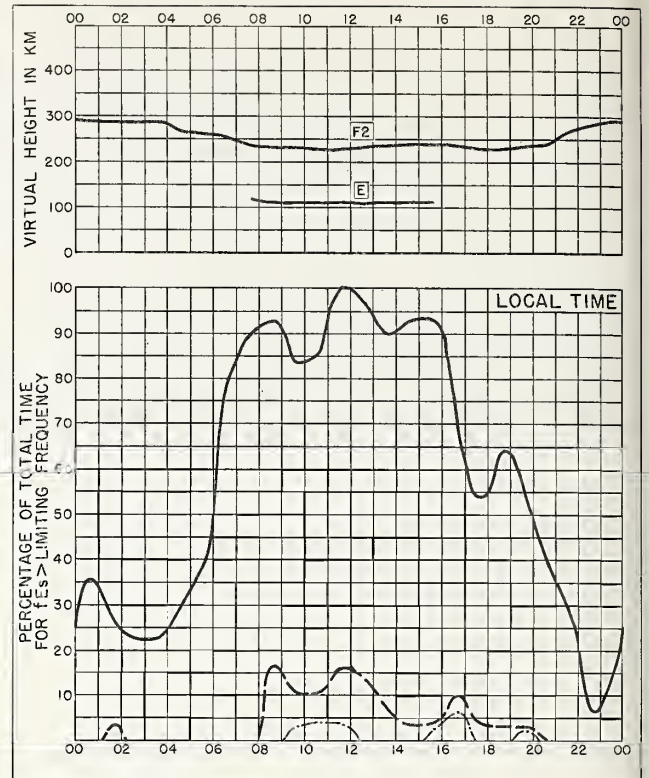



Fig. 94. LINDAU/HARZ, GERMANY OCTOBER 1956

NBS 490

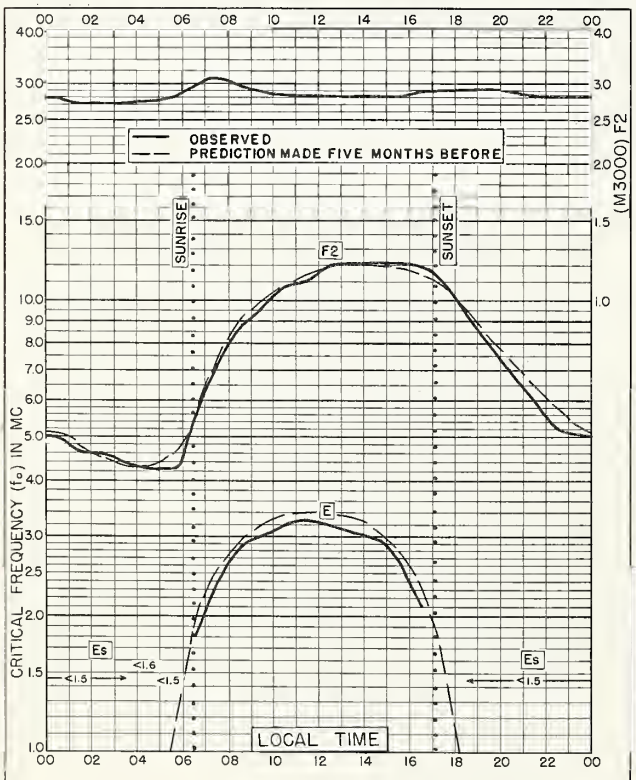



Fig. 95. WINNIPEG, CANADA
49.9°N, 97.4°W OCTOBER 1956

NBS 503

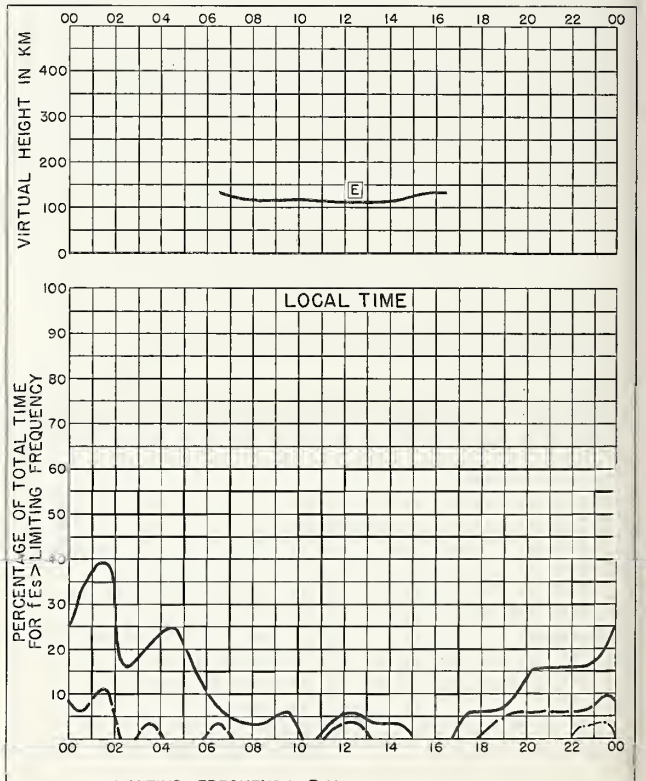



Fig. 96. WINNIPEG, CANADA OCTOBER 1956

NBS 490

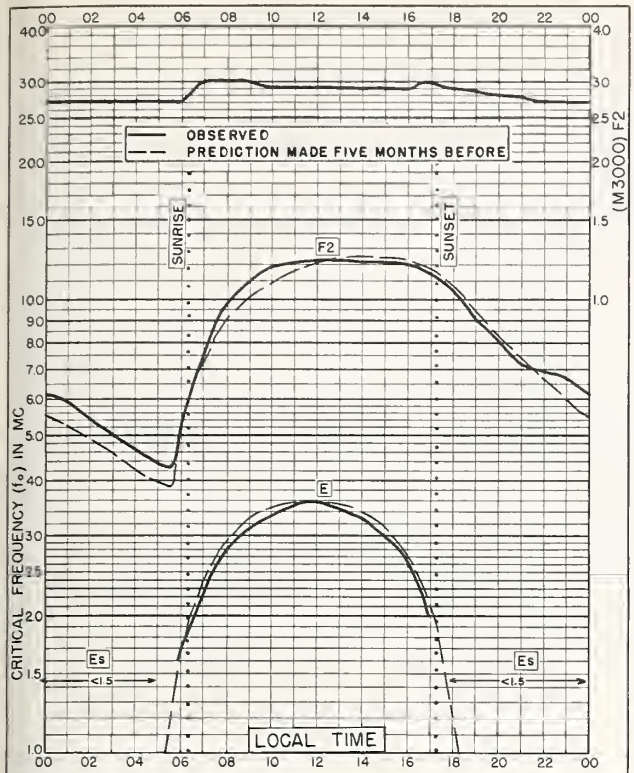



Fig. 97. OTTAWA, CANADA
45.4°N, 75.9°W OCTOBER 1956

NBS 503

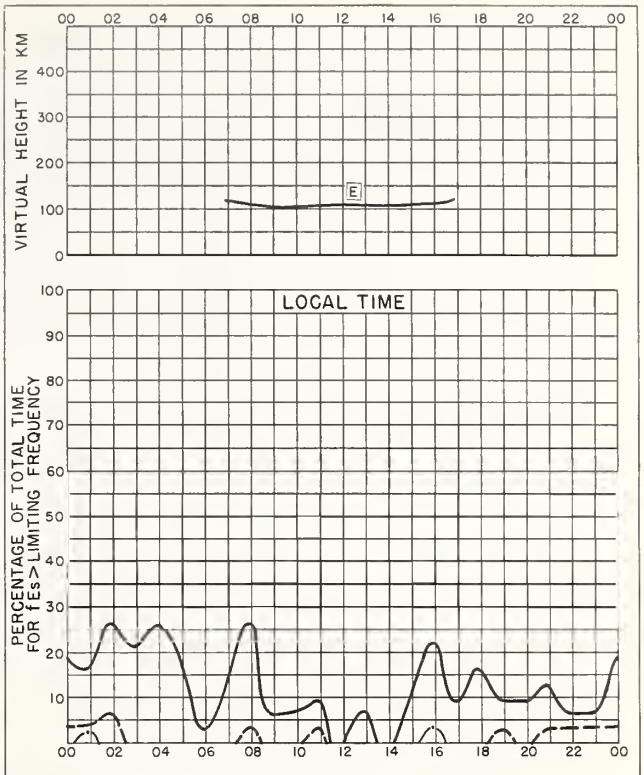



Fig. 98. OTTAWA, CANADA OCTOBER 1956

NBS 490

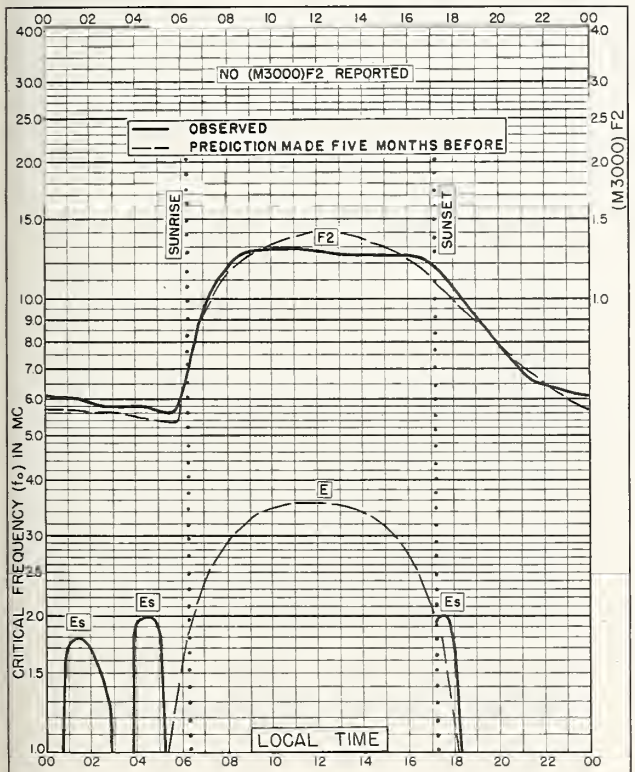



Fig. 99. WAKKANAI, JAPAN
45.4°N, 141.7°E OCTOBER 1956

NBS 503

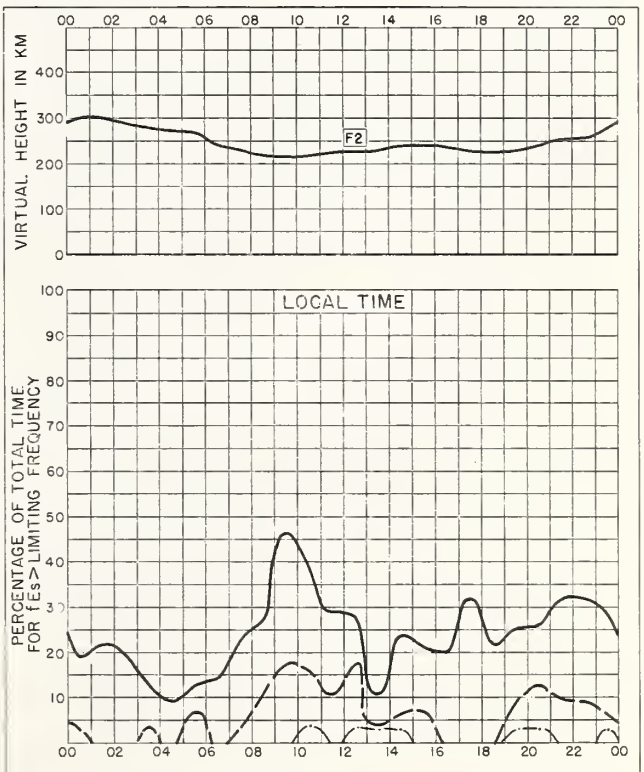



Fig. 100. WAKKANAI, JAPAN OCTOBER 1956

NBS 490

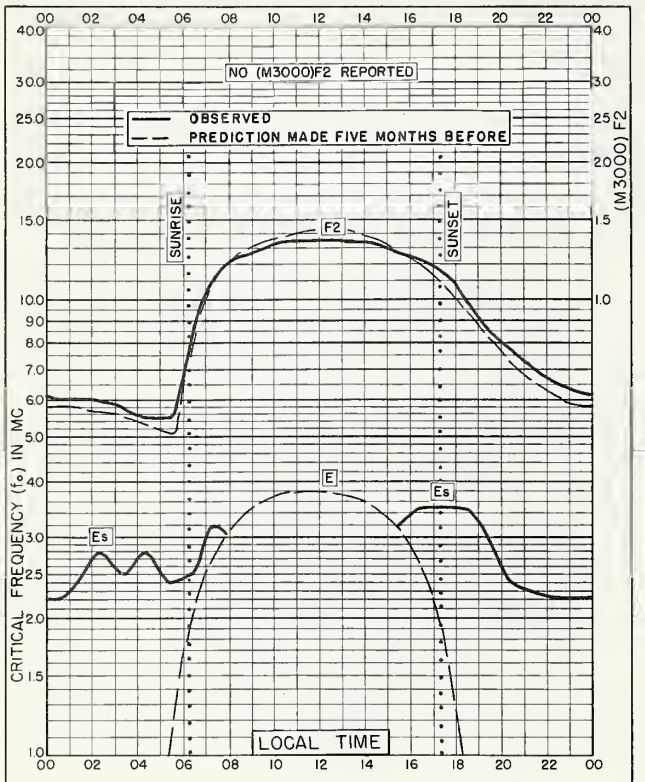



Fig. 101. AKITA, JAPAN
39.7°N, 140.1°E OCTOBER 1956

NBS 503

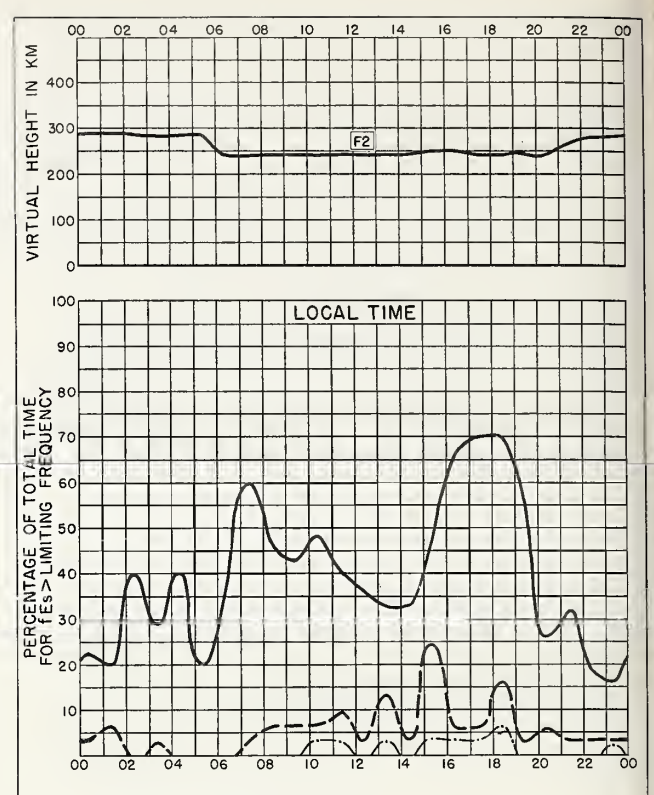



Fig. 102. AKITA, JAPAN OCTOBER 1956

NBS 490

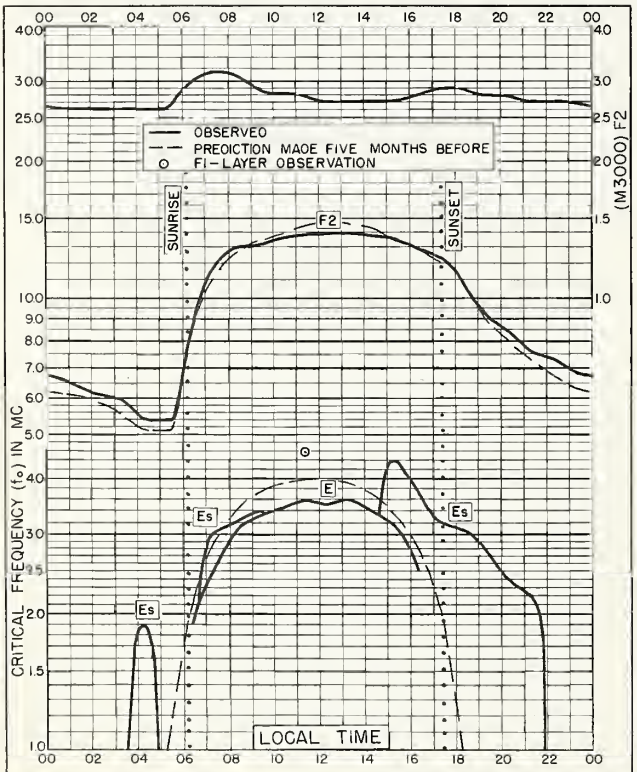



Fig. 103. TOKYO, JAPAN
35.7°N, 139.5°E OCTOBER 1956

NBS 503

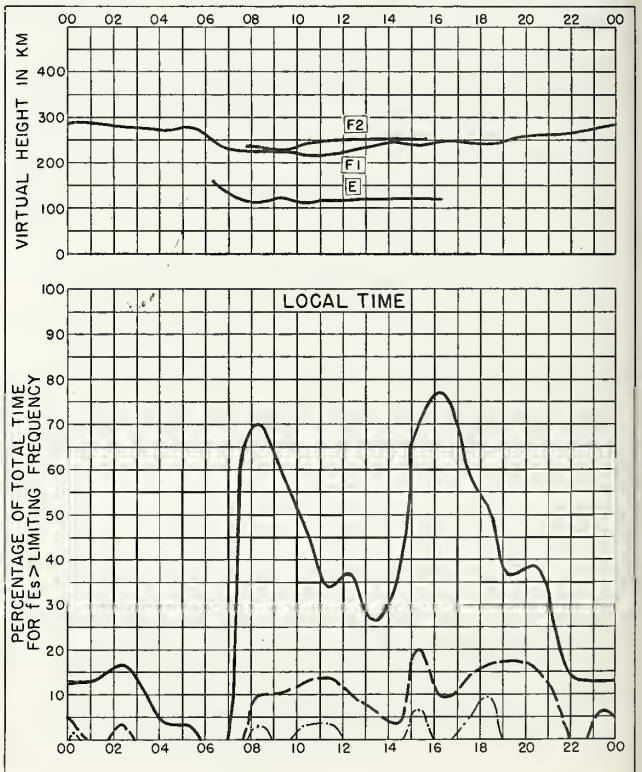



Fig. 104. TOKYO, JAPAN OCTOBER 1956

NBS 490

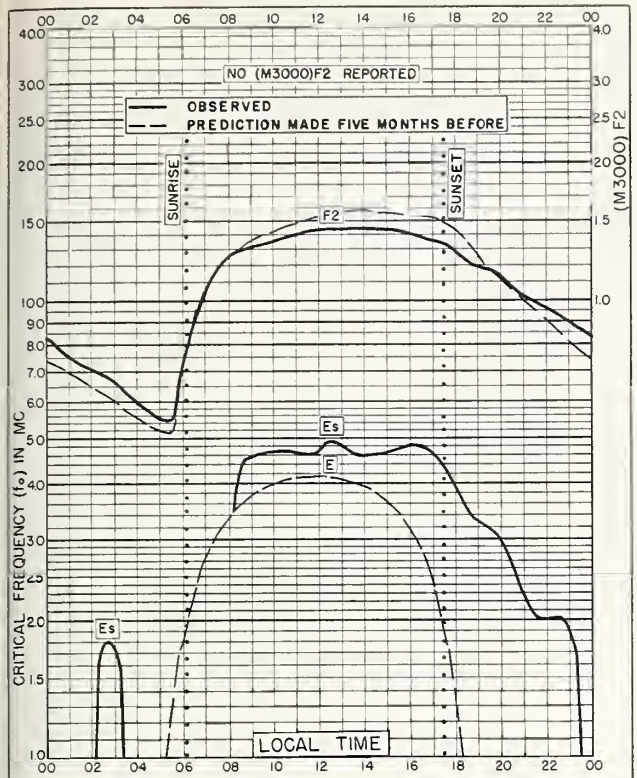



Fig. 105. YAMAGAWA, JAPAN
31.2°N, 130.6°E OCTOBER 1956

NBS 503

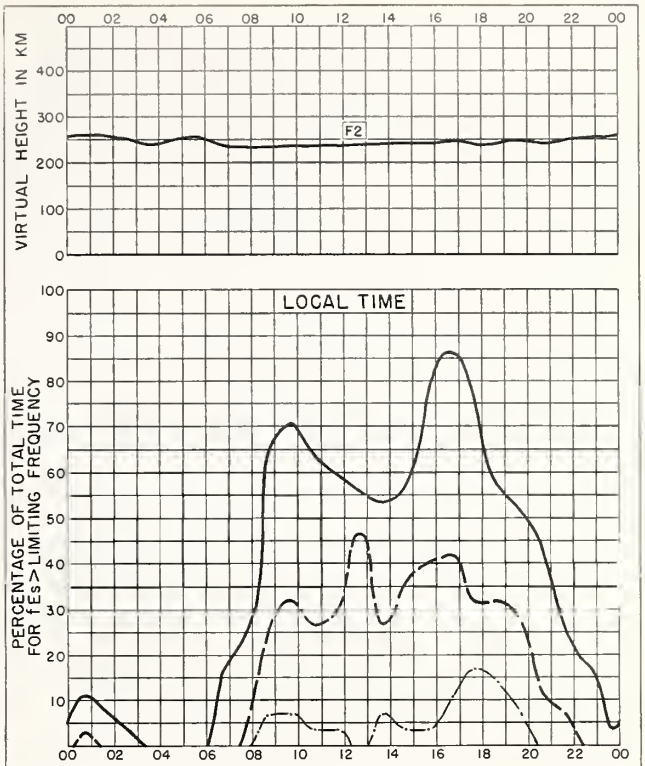



Fig. 106. YAMAGAWA, JAPAN OCTOBER 1956

NBS 490

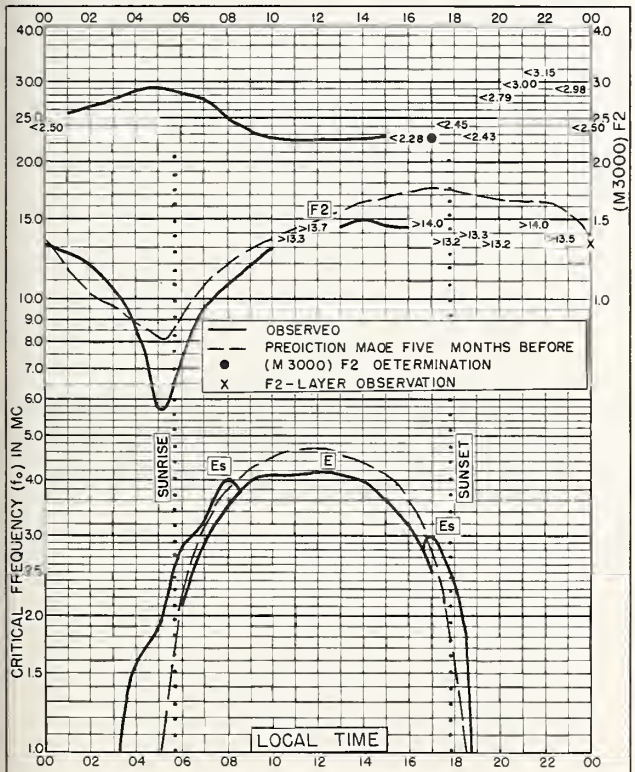



Fig. 107. LEOPOLDVILLE, BELGIAN CONGO
4.4°S, 15.2°E OCTOBER 1956

NBS 503

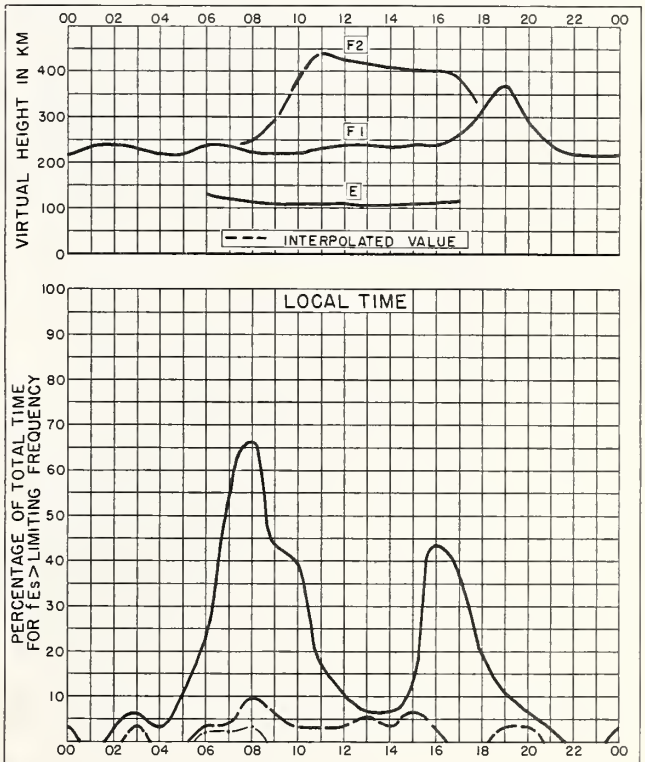



Fig. 108. LEOPOLDVILLE, BELGIAN CONGO OCTOBER 1956

NBS 490

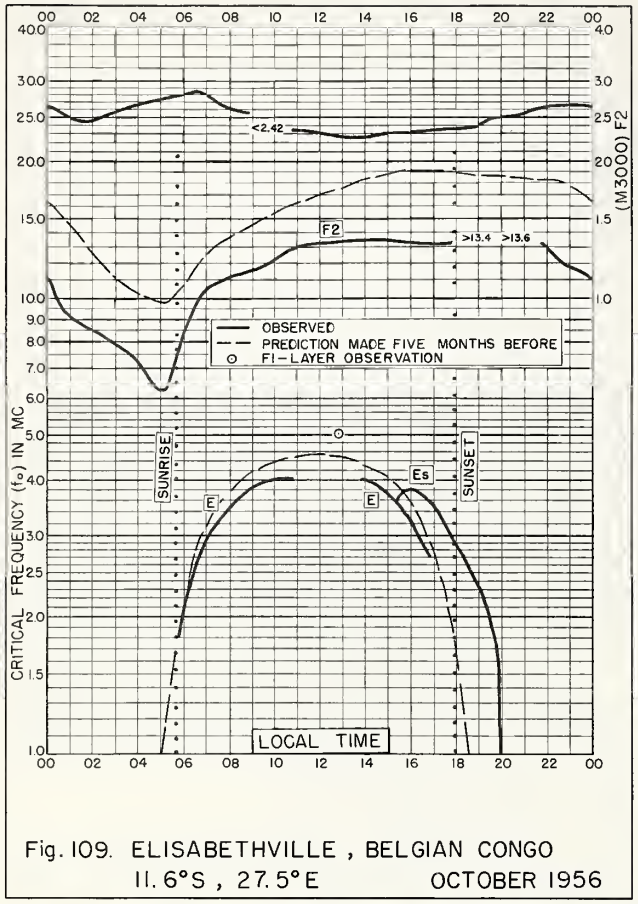



Fig. 109. ELISABETHVILLE, BELGIAN CONGO
11.6°S, 27.5°E OCTOBER 1956

NBS 503

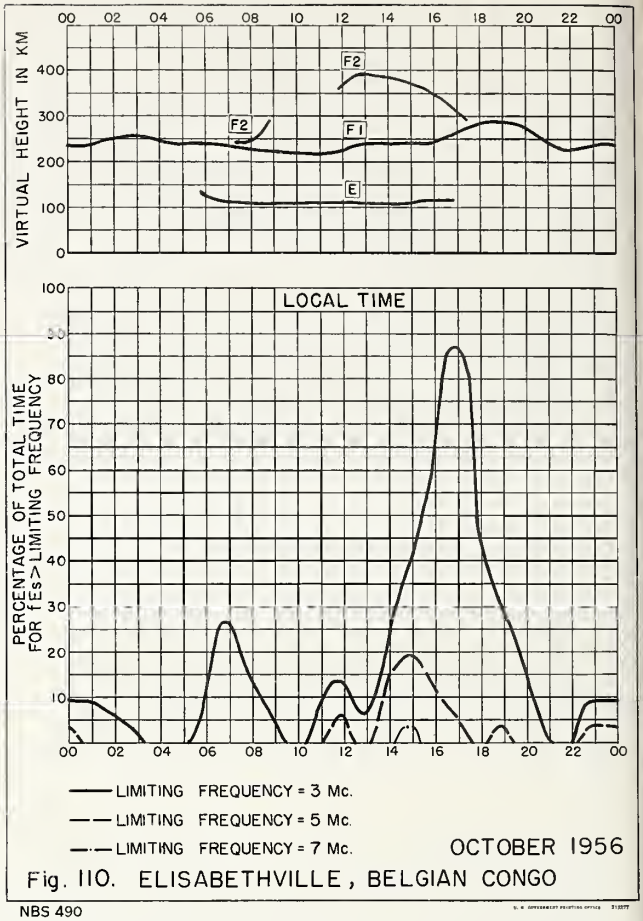



Fig. 110. ELISABETHVILLE, BELGIAN CONGO
OCTOBER 1956

NBS 490

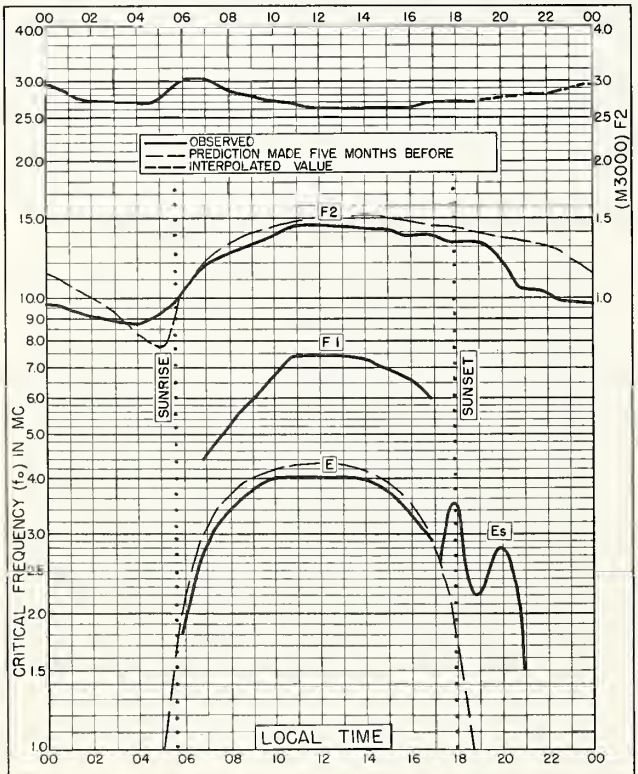



Fig. 111. RAROTONGA I.
21.2°S, 159.8°W OCTOBER 1956

NBS 503

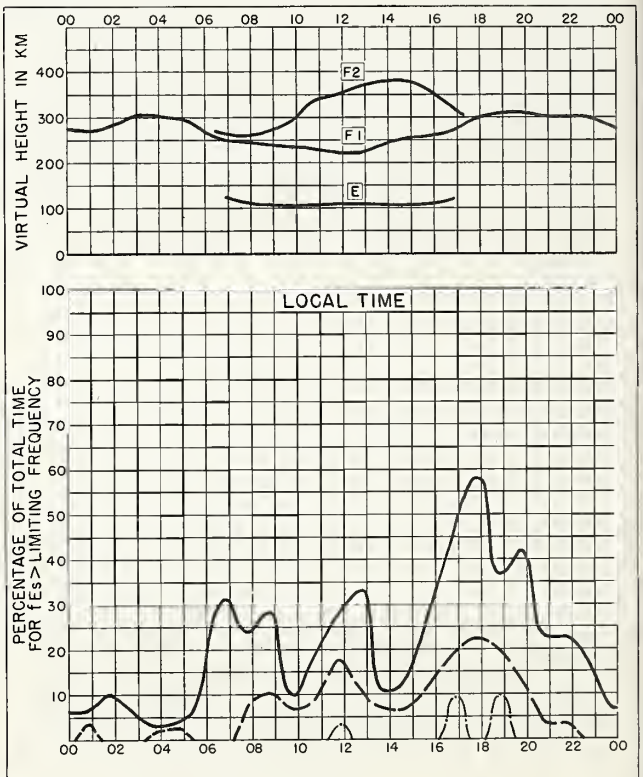



Fig. 112. RAROTONGA I. OCTOBER 1956

NBS 490

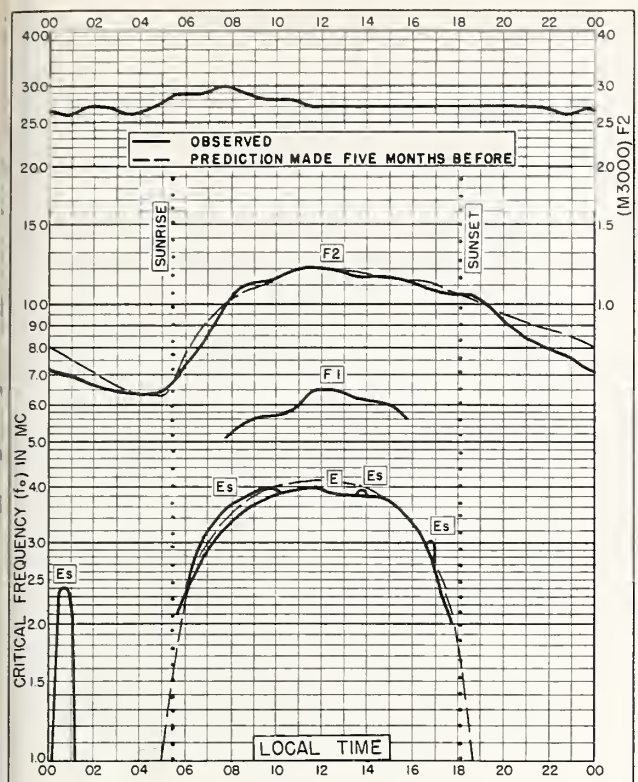
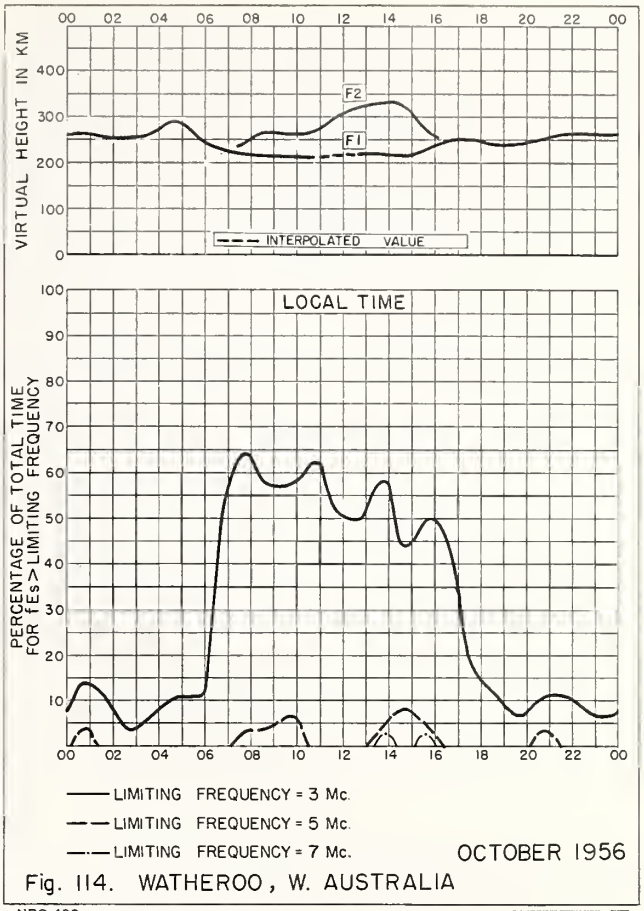



Fig. 113. WATHEROO, W. AUSTRALIA
30.3°S, 115.9°E OCTOBER 1956

NBS 503




OCTOBER 1956

Fig. 114. WATHEROO, W. AUSTRALIA

NBS 490

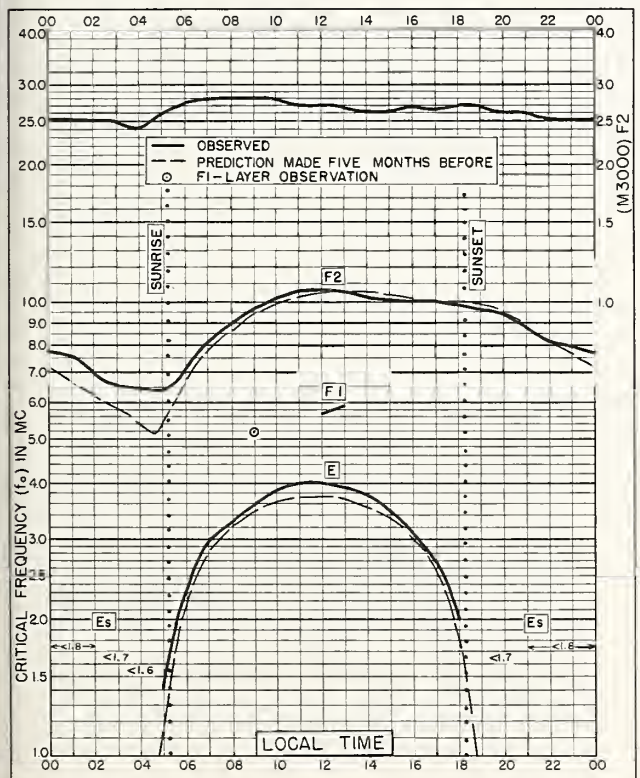
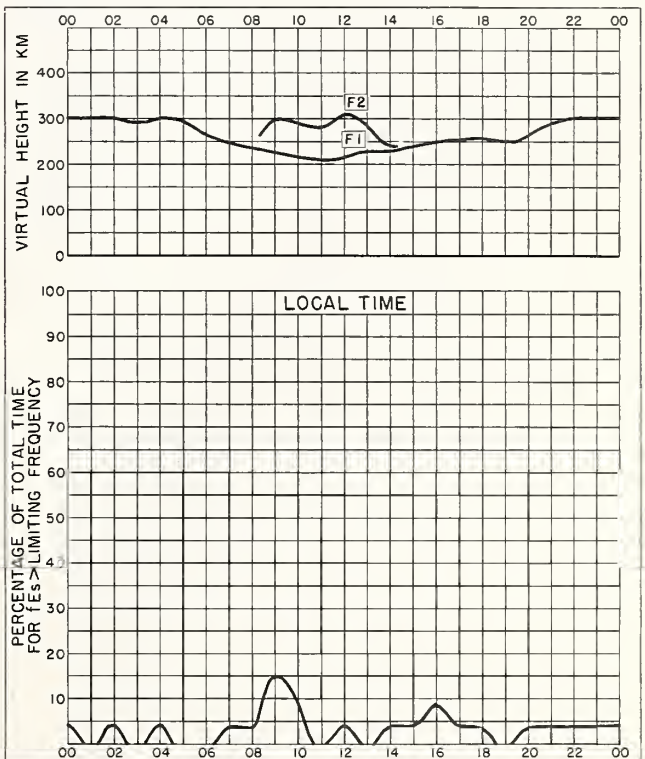



Fig. 115. CHRISTCHURCH, NEW ZEALAND
43.6°S, 172.8°E OCTOBER 1956

NBS 503




OCTOBER 1956

Fig. 116. CHRISTCHURCH, NEW ZEALAND

NBS 490

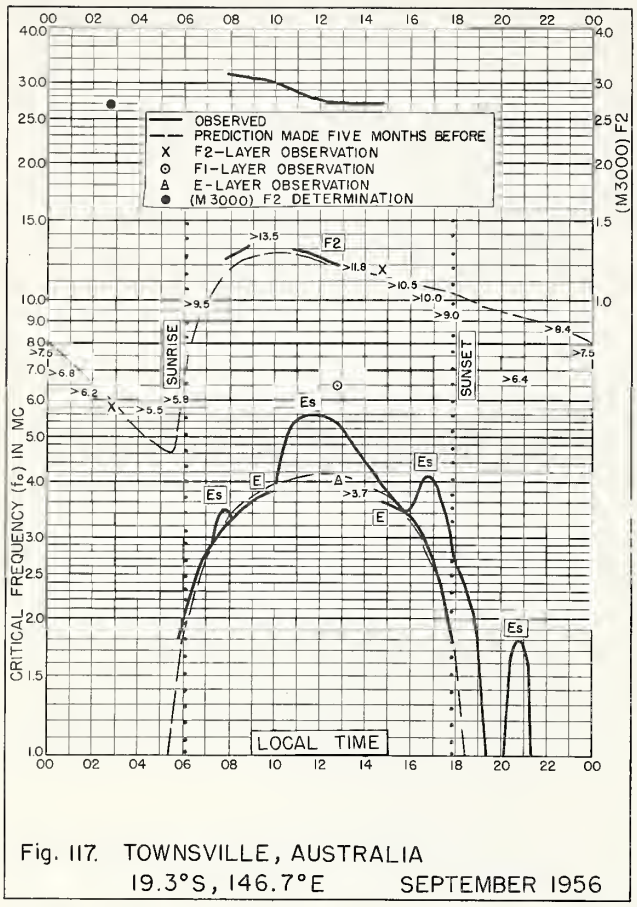
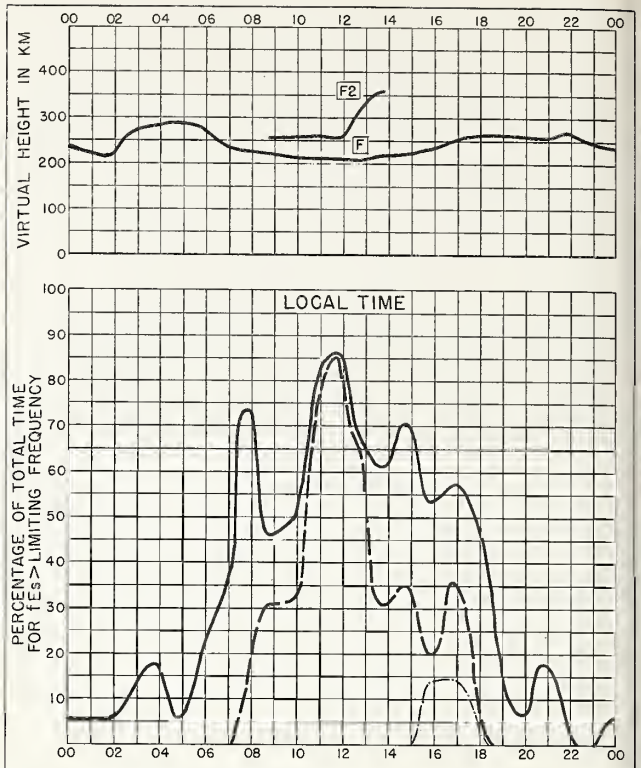



Fig. 117. TOWNSVILLE, AUSTRALIA
19.3°S, 146.7°E SEPTEMBER 1956

NBS 503




SEPTEMBER 1956

Fig. 118. TOWNSVILLE, AUSTRALIA

NBS 490

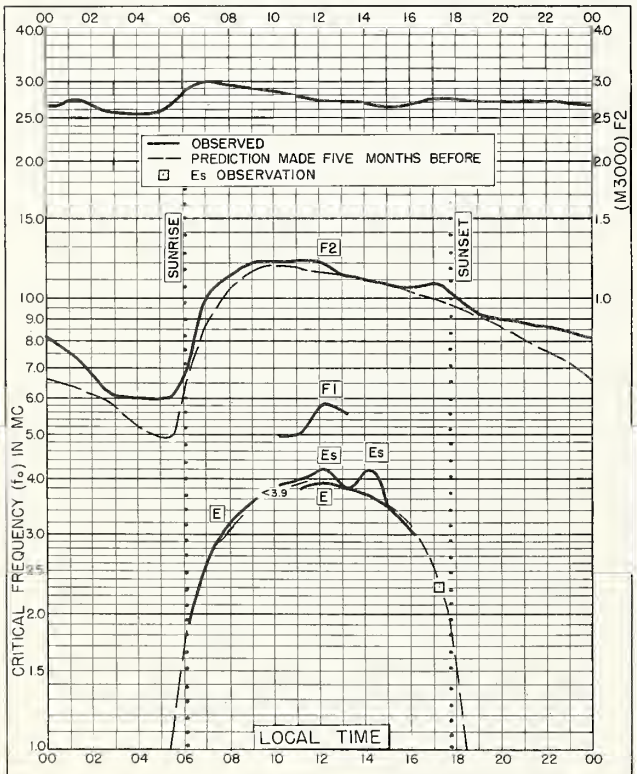
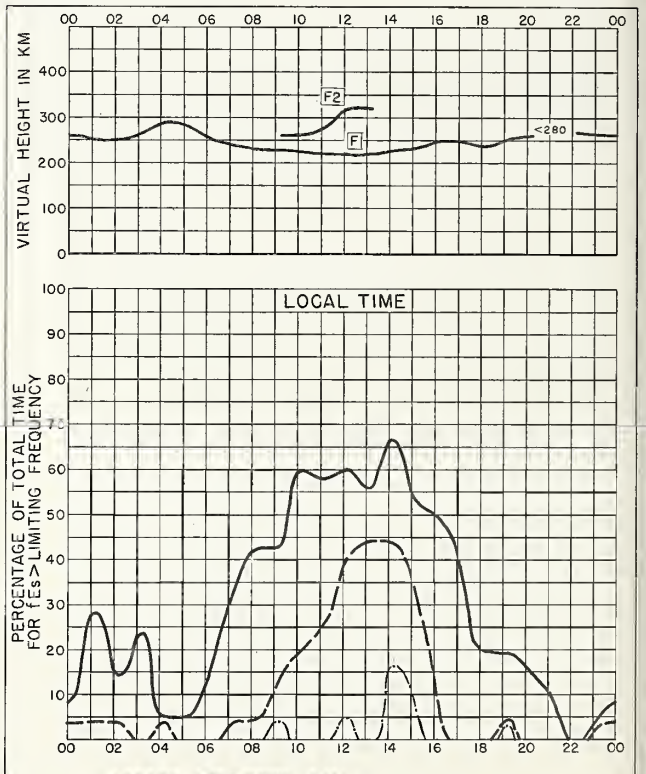



Fig. 119. BRISBANE, AUSTRALIA
27.5°S, 153.0°E SEPTEMBER 1956

NBS 503




SEPTEMBER 1956

Fig. 120. BRISBANE, AUSTRALIA

NBS 490

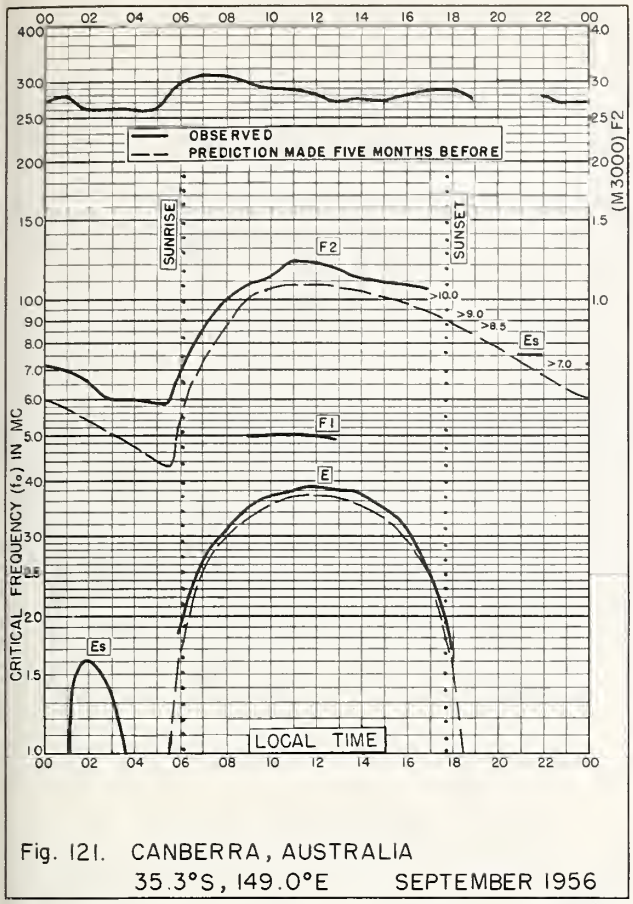
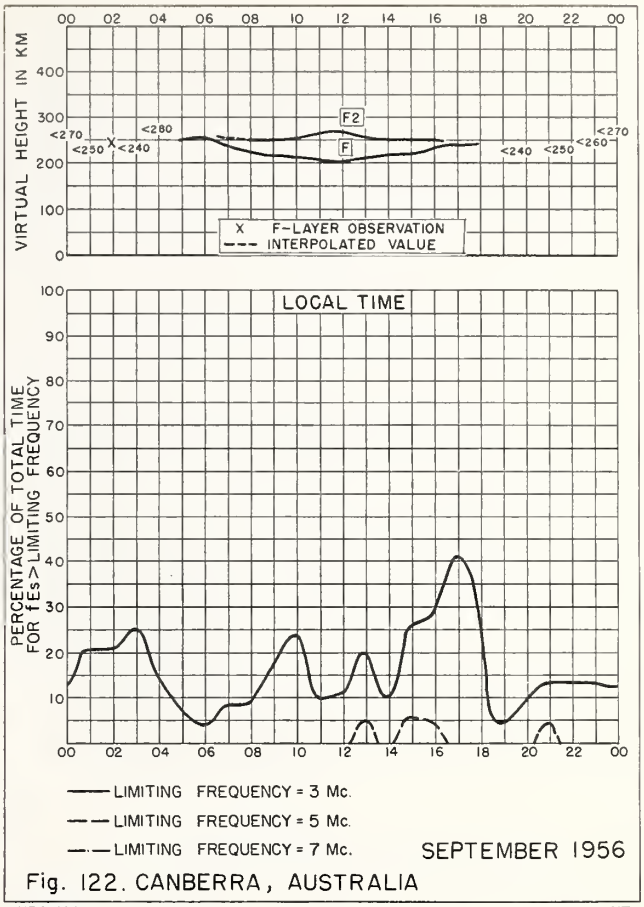



Fig. 121. CANBERRA, AUSTRALIA
35.3°S, 149.0°E SEPTEMBER 1956

NBS 503




SEPTEMBER 1956

Fig. 122. CANBERRA, AUSTRALIA

NBS 490

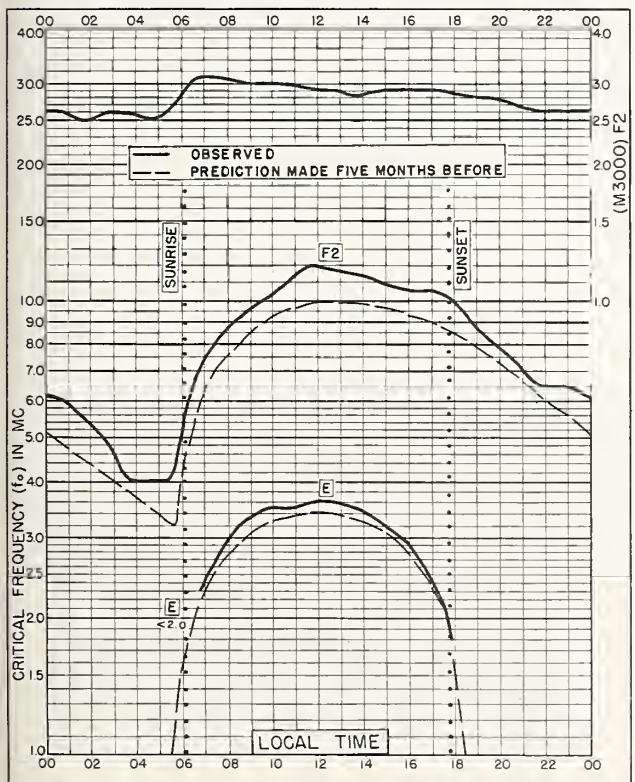



Fig. 123. HOBART, TASMANIA
42.9°S, 147.2°E SEPTEMBER 1956

NBS 503

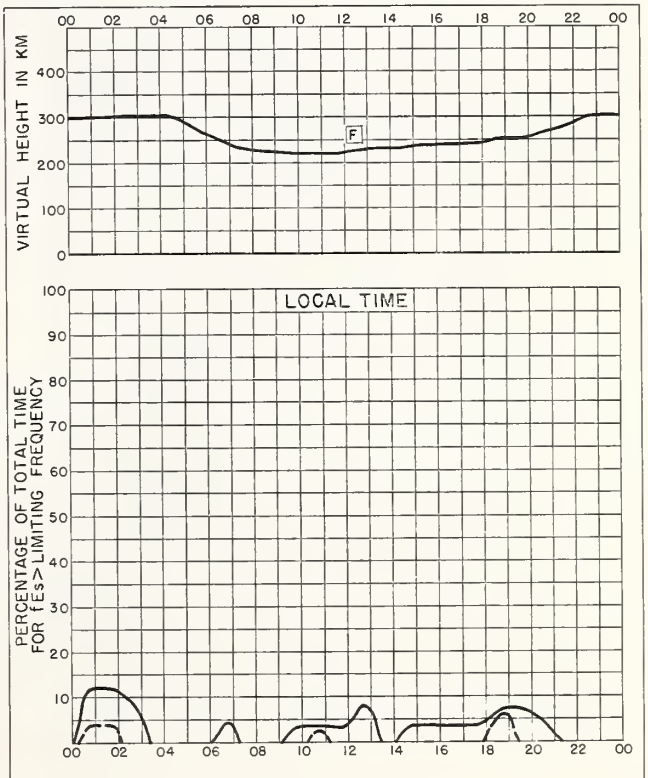



Fig. 124. HOBART, TASMANIA SEPTEMBER 1956

NBS 490

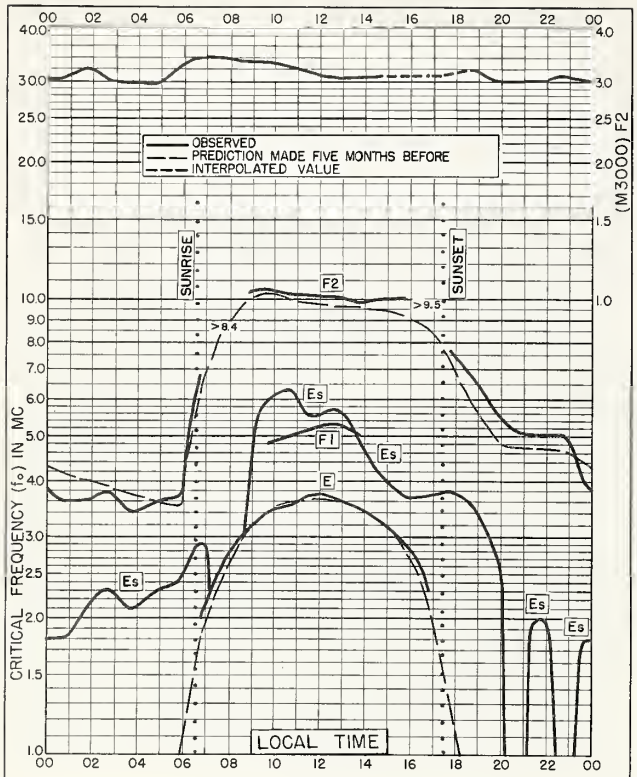



Fig. 125. TOWNSVILLE, AUSTRALIA
19.3°S, 146.7°E JUNE 1956

NBS 503

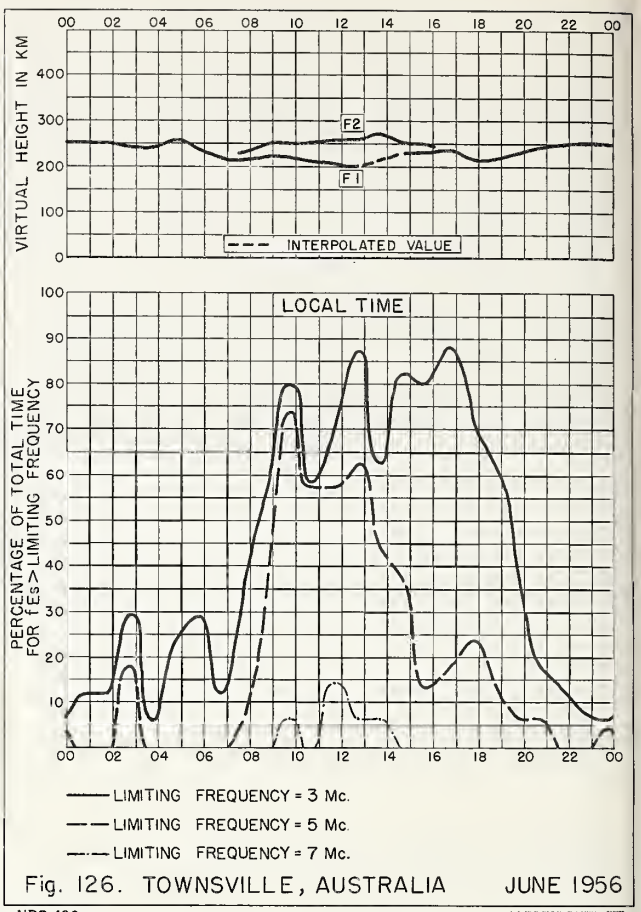



Fig. 126. TOWNSVILLE, AUSTRALIA JUNE 1956

NBS 490

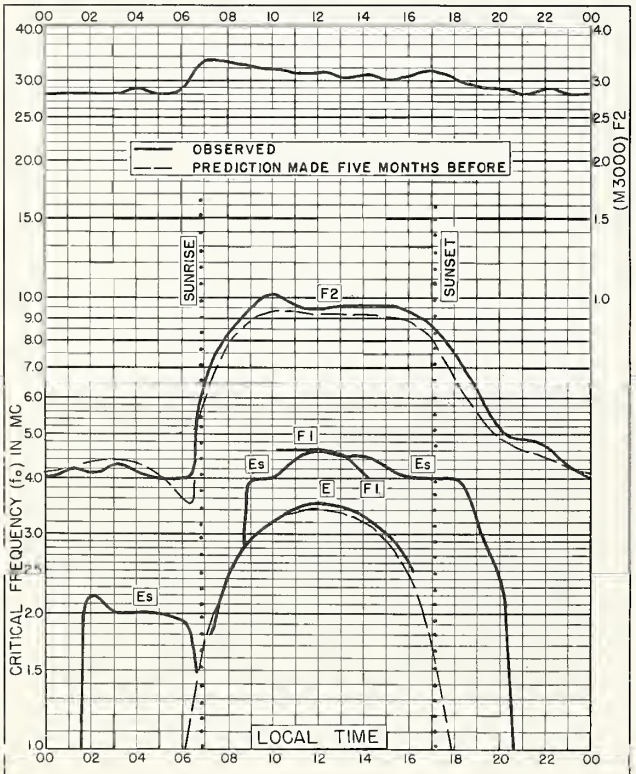



Fig. 127. BRISBANE, AUSTRALIA
27.5°S, 153.0°E JUNE 1956

NBS 503

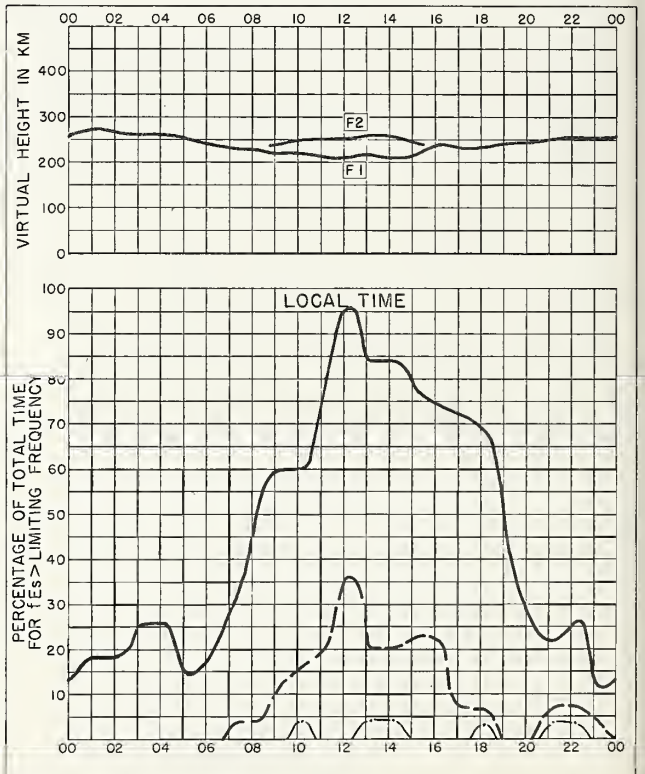



Fig. 128. BRISBANE, AUSTRALIA JUNE 1956

NBS 490

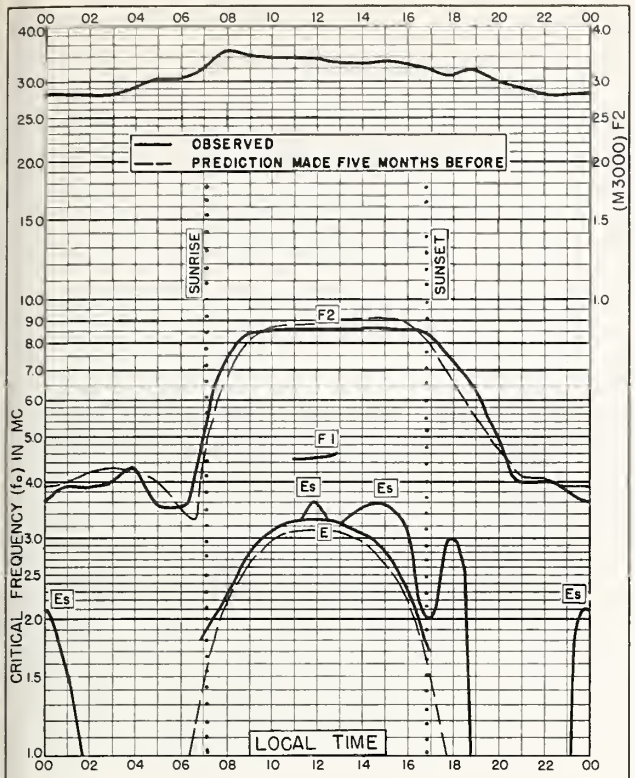



Fig. 129. CANBERRA, AUSTRALIA
35.3°S, 149.0°E JUNE 1956

NBS 503

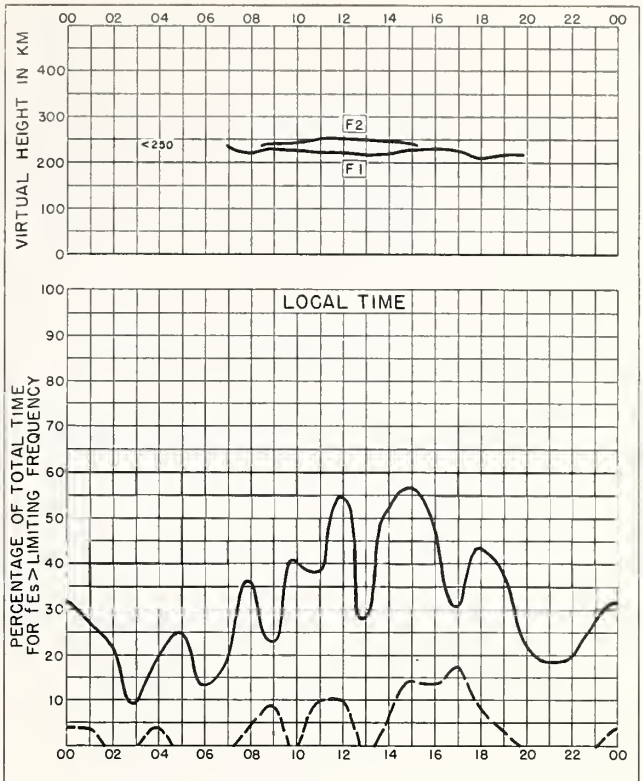



Fig. 130. CANBERRA, AUSTRALIA JUNE 1956

NBS 490

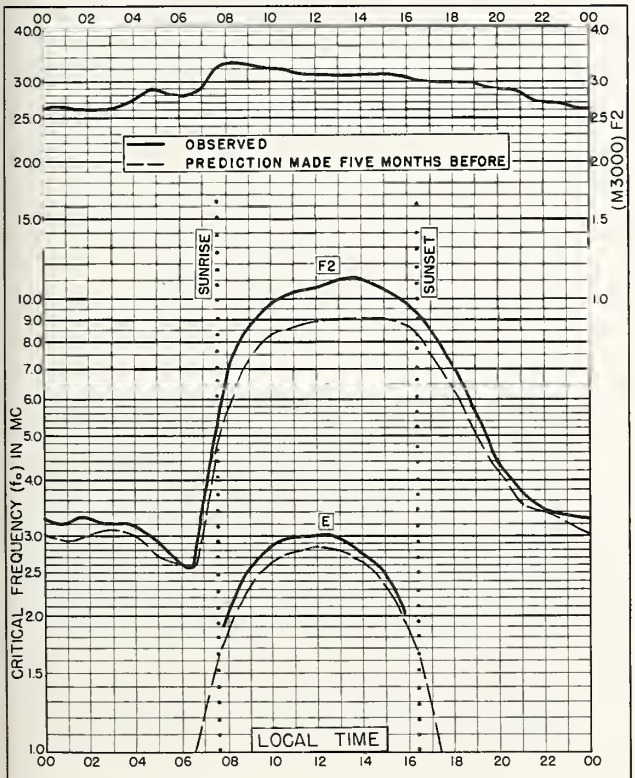



Fig. 131. HOBART, TASMANIA
42.9°S, 147.2°E JUNE 1956

NBS 503

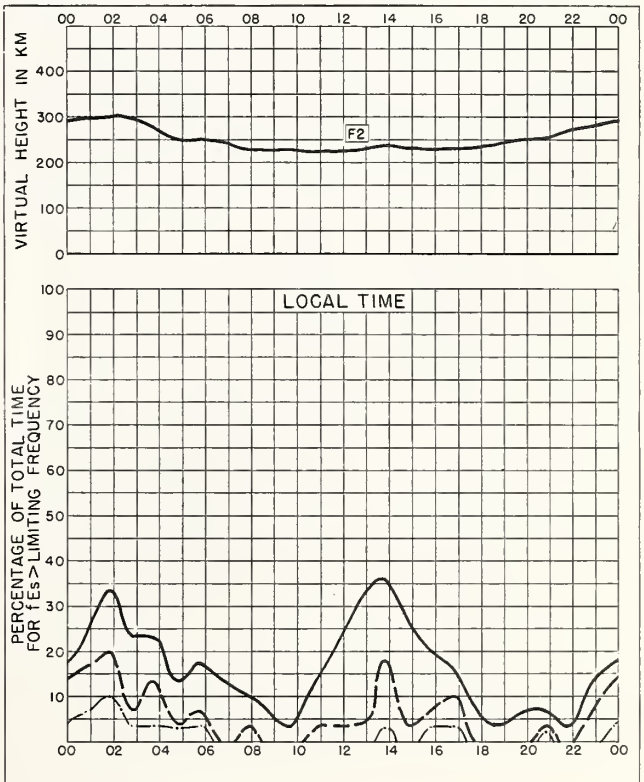



Fig. 132. HOBART, TASMANIA JUNE 1956

NBS 490

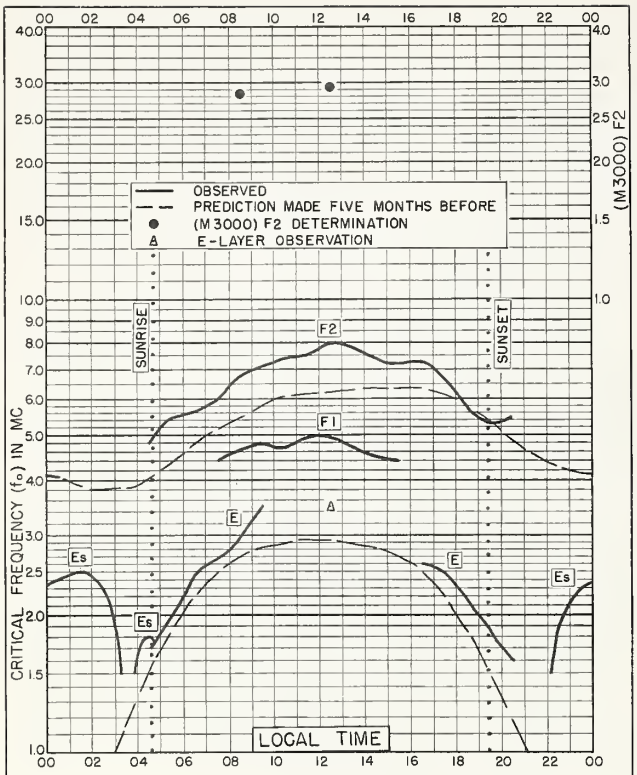



Fig. 133. LULEA, SWEDEN
65.6°N, 22.1°E APRIL 1956

NBS 503

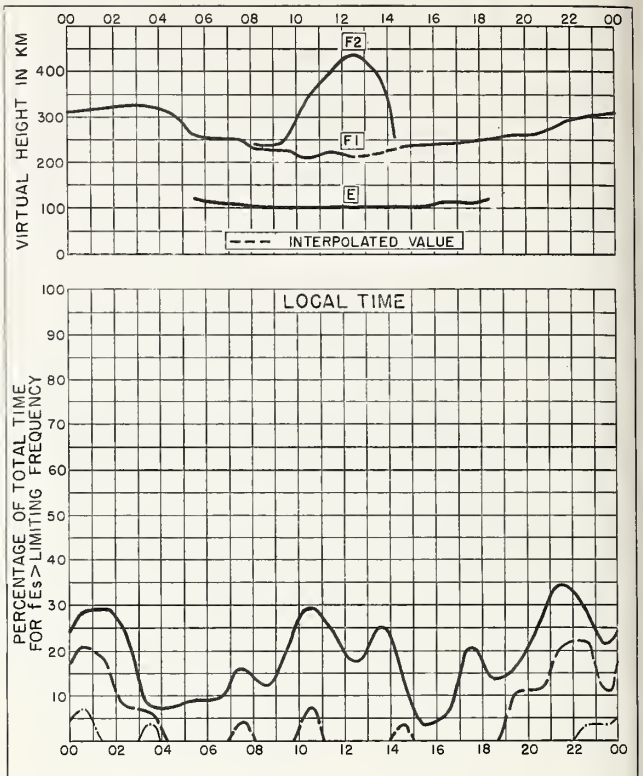



Fig. 134. LULEA, SWEDEN APRIL 1956

NBS 490

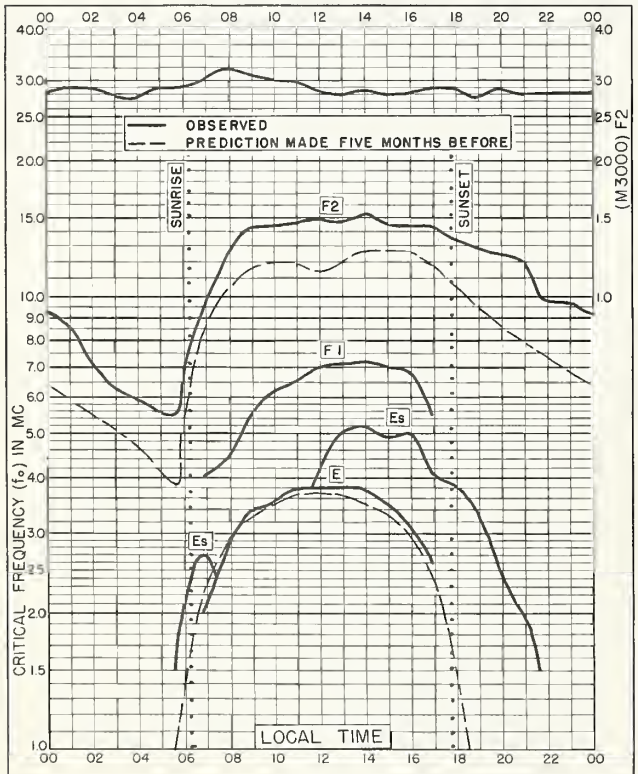



Fig. 135. RAROTONGA I.
21.2°S, 159.8°W APRIL 1956

NBS 503

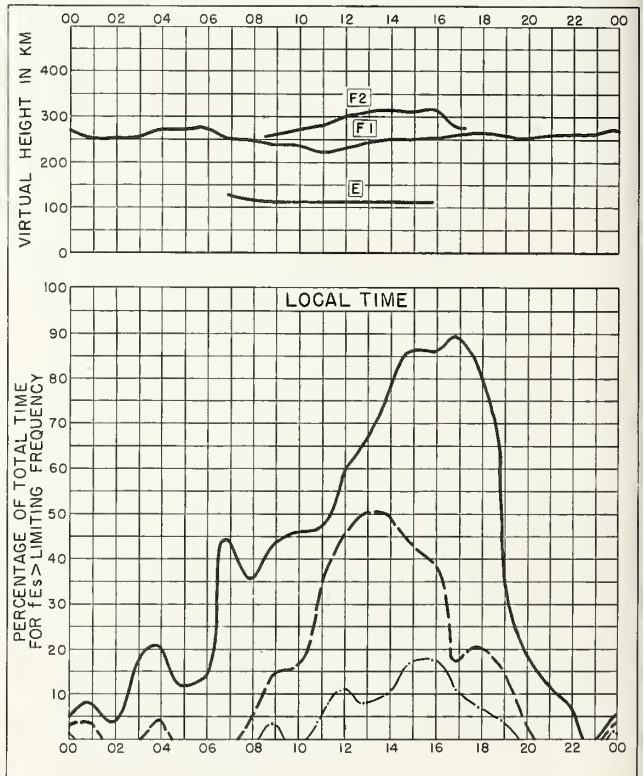



Fig. 136. RAROTONGA I. APRIL 1956

NBS 490

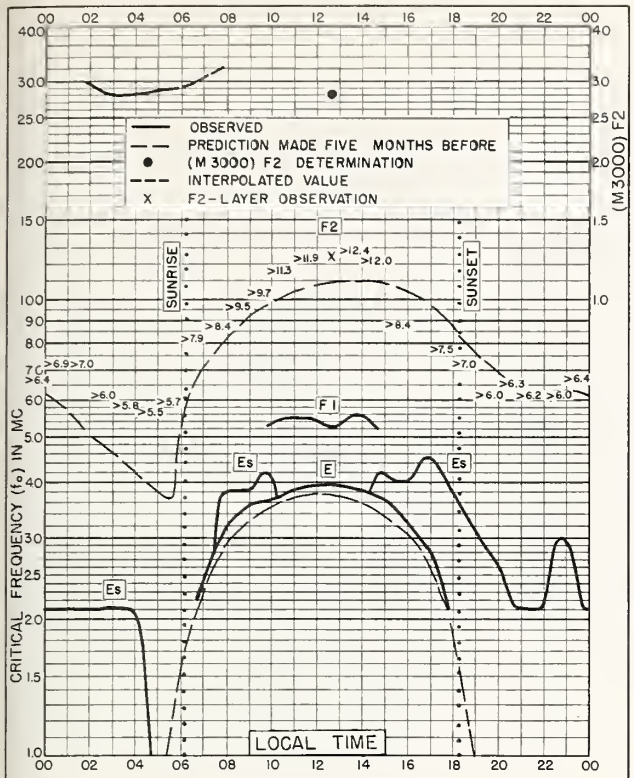



Fig. 137. TOWNSVILLE, AUSTRALIA
19.3°S, 146.7°E MARCH 1956

NBS 503

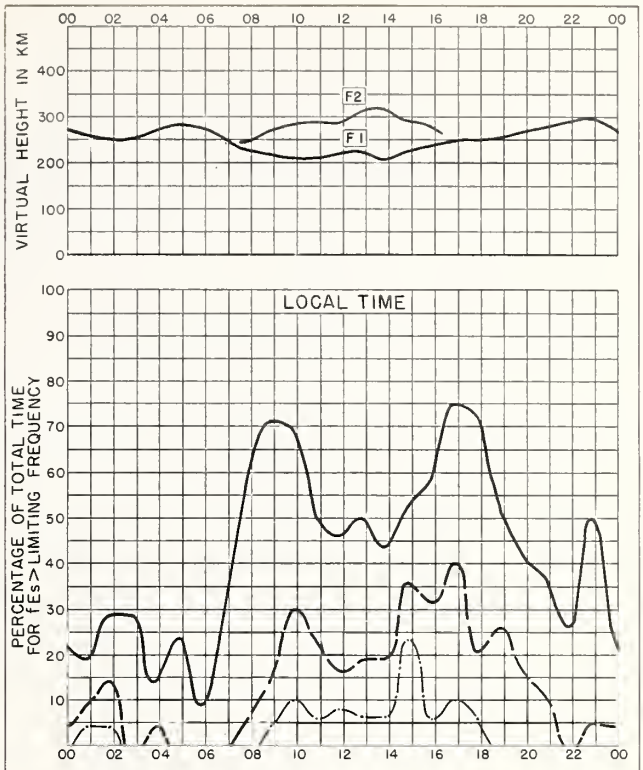



Fig. 138. TOWNSVILLE, AUSTRALIA MARCH 1956

NBS 490

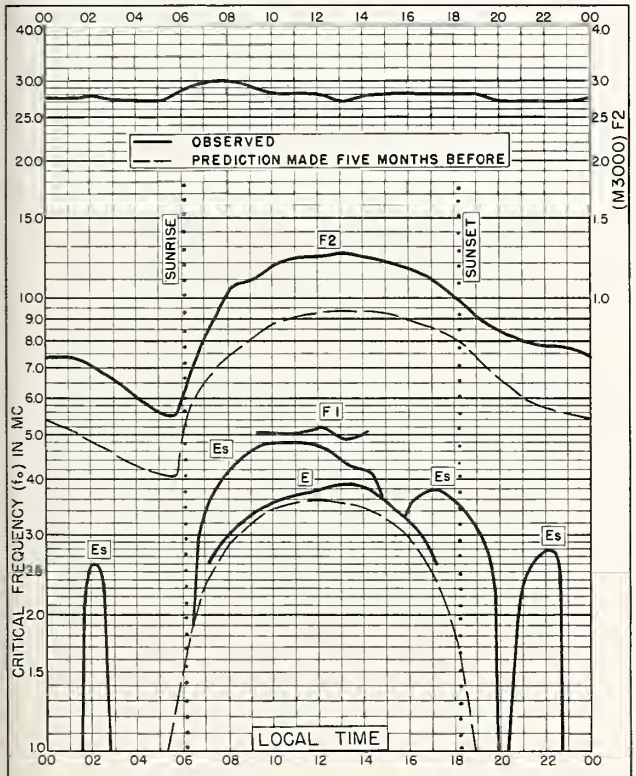



Fig. 139. BRISBANE, AUSTRALIA
27.5°S, 153.0°E MARCH 1956

NBS 503

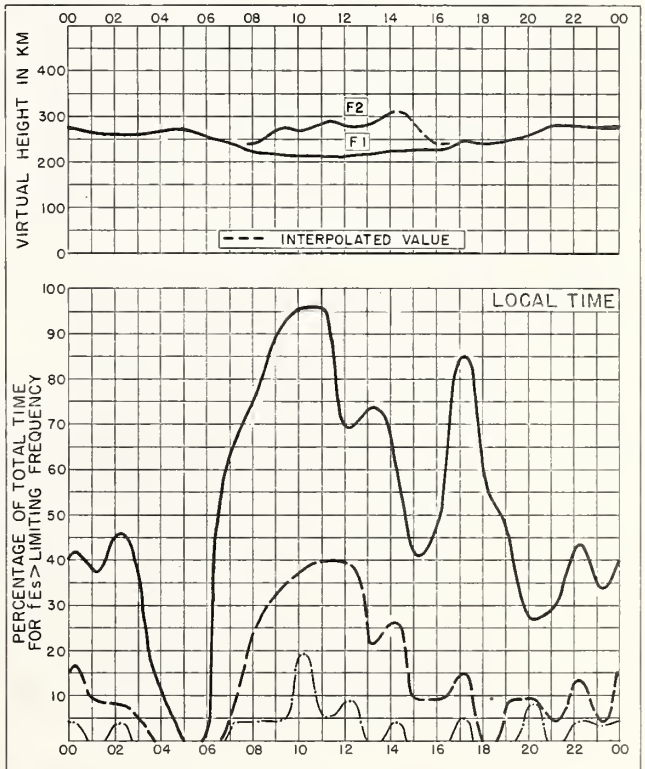



Fig. 140. BRISBANE, AUSTRALIA MARCH 1956

NBS 490

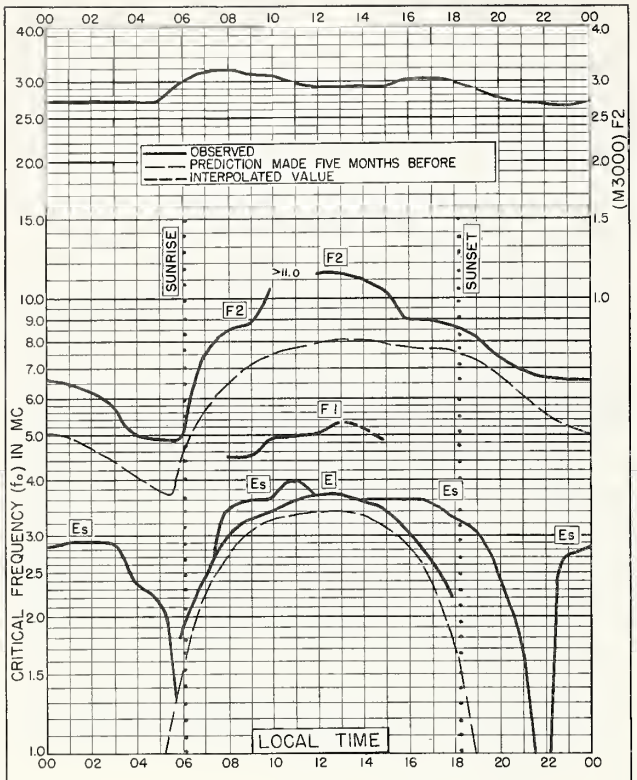



Fig. 141. CANBERRA, AUSTRALIA
35.3°S, 149.0°E MARCH 1956

NBS 503

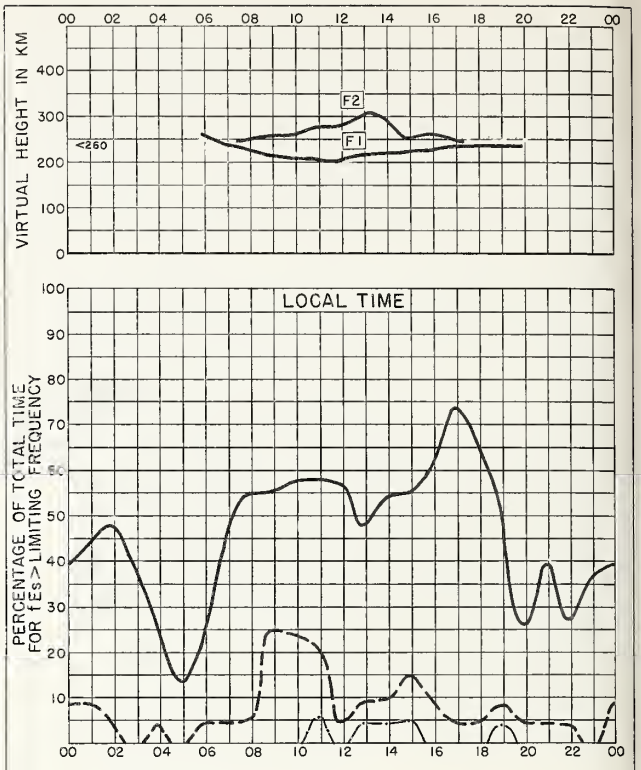



Fig. 142. CANBERRA, AUSTRALIA MARCH 1956

NBS 490

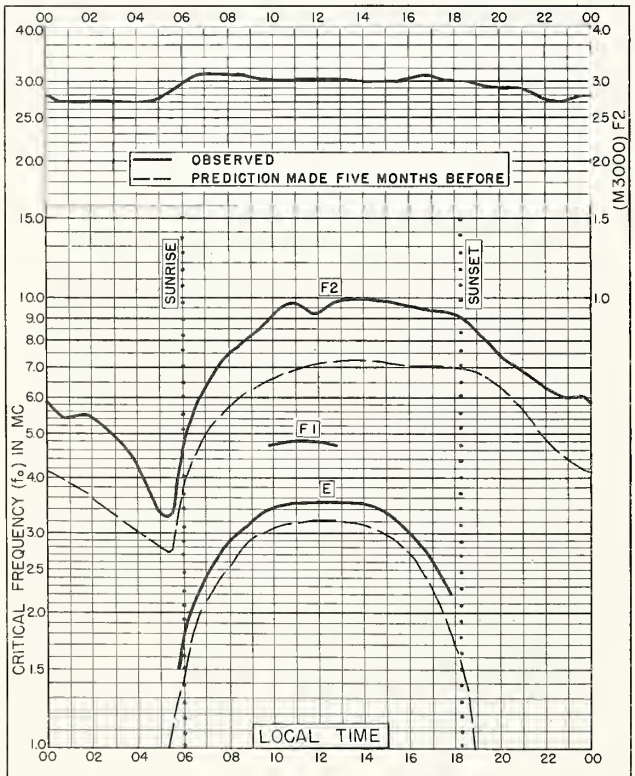



Fig. 143. HOBART, TASMANIA
42.9°S, 147.2°E MARCH 1956

NBS 503

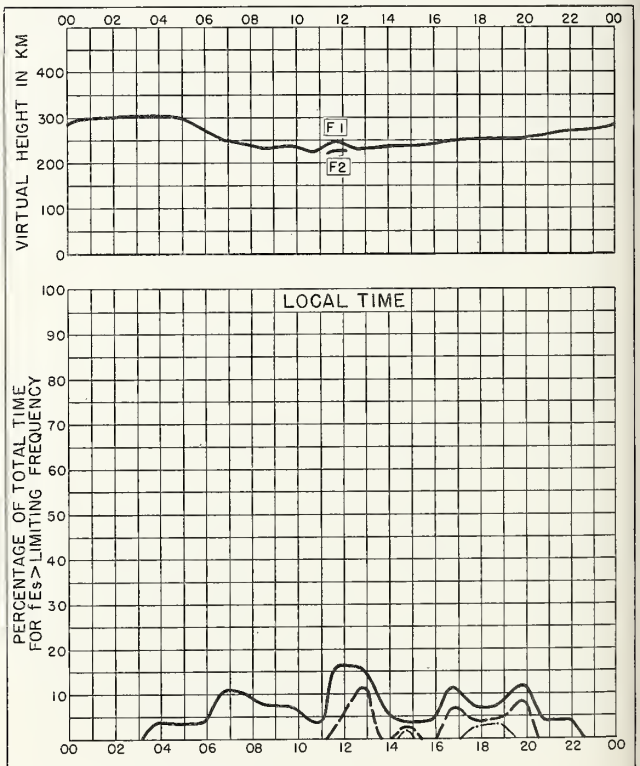



Fig. 144. HOBART, TASMANIA MARCH 1956

NBS 490

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Index (CRPL-F153 (Part A), concluded)

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